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Catalogue No. 75-001-XPE Quarterly



PERSPECTIVES

ON LABOUR AND INCOME

SPRING 1996

- '95 IN REVIEW
- UNEMPLOYMENT MOSAIC
- WOMEN ENTREPRENEURS
- SERVICE JOBS ... LOW PAY?
- FAMILIES AND UNEMPLOYMENT
- UNIONIZED WORKERS



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Perspectives on Labour and Income (Catalogue no. 75-001-XPE; aussi disponible en français: *L'emploi et le revenu en perspective*, n° 75-001-XPF au catalogue) is published four times a year under the authority of the Minister responsible for Statistics Canada. ©Minister of Industry 1996. SUBSCRIPTION RATES: \$56 a year in Canada, US\$68 in the United States, US\$80 in other countries. Single issue \$17 in Canada, US\$21 in the United States, US\$24 in other countries. ISSN: 0840-8750.

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Indexed in the *Canadian Index*, *Canadian Periodical Index*, *P.A.I.S. International* and *Sociological Abstracts*, and available online in *Canadian Business and Current Affairs* and *Employee Benefits Infosource*. Also indexed in French in *L'Index de l'Actualité* and *Point de Repère*.

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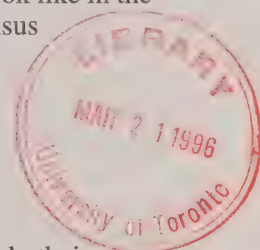
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Who are they? Where do they work? And how do their earnings compare with those of men in similar circumstances? This article looks at the growth in entrepreneurship among women, and compares their characteristics with those of their male counterparts.

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Many people believe that service jobs are synonymous with low wages. This article compares average weekly earnings, excluding overtime, of paid workers across more than 100 different service industries. It also assesses the disparity in the earnings of service and goods sector workers.



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Diane Galarneau

A look at trends in unionization rates by industry over the last two decades. Also examined are the changing demographic and labour market characteristics of unionized workers over the period 1984 to 1990.

Symbols

The following standard symbols are used in Statistics Canada publications:

..	figures not available
...	figures not appropriate or not applicable
-	nil or zero
--	amount too small to be expressed
p	preliminary figures
r	revised figures
x	confidential to meet secrecy requirements of the Statistics Act

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Forum

Letter from the Editor-in-Chief

■ On May 14, your household will be asked to participate in the 1996 Census of Population. It's fairly quick (even the longer questionnaire takes only about 30 minutes on average to answer), yet the cumulative result of these individual efforts nationwide is an unrivalled source of information about Canadians. For profiles of employment and income distributions the census is unparalleled: nowhere else can you find detailed data about the percentage of part-time workers in the gambling industry, for example, or the annual earnings of judges, and compare them with data from 5, 10, or even 25 years ago. Furthermore, only the census can provide demographic and labour market data for small geographic areas such as towns and neighbourhoods.

With all its variegated richness of detail and its unique value to both the public and private sectors, the census is absolutely daunting to the statisticians involved. It's true that they face similar challenges with other surveys put into the field, but the census greatly magnifies them. The most obvious is the logistics of collecting data from 11 million households. Other challenges lie in the decisions to be made about the concepts behind the definitions of the variables, the processing techniques to be used, and the numerous formats in which the data will be distributed to the public. With each choice, the census decision-makers are presented with at least one dilemma. The fact that the census is conducted only once every five years, at great expense, makes the consequences of a misstep especially serious.

One of the oldest statistical dilemmas is the trade-off between relevance and consistency. To better reflect current conditions in the economy, it may be necessary to change the definition or concept underlying a particular statistical measure; however, changing a statistical measure to ensure its continued relevance to contemporary reality can severely impair its usefulness as an indicator over time. For example, the 1991 *Standard Occupational Classification* introduced several new categories in order to measure occupations that had emerged over the previous two decades, and grouped

others because the number of workers in those categories had become too small. These changes allow labour market surveys to generate data on jobs that did not exist a few years ago. While this updating is both necessary and desirable, the categories have been altered so dramatically that, in most cases, data comparability across time will be quite strained.

Another of the statistician's oldest dilemmas is how to balance timeliness with quality. People use statistical information to make decisions today that will affect them tomorrow; the decisions may involve setting support payments, looking for work in an area of lower unemployment, locating a new retail outlet, or projecting the health-care demands of a community. Naturally, they expect the data on which they base these crucial decisions to be timely – to describe conditions as they exist today, not yesterday. While all statisticians recognize the legitimacy of this demand, census statisticians face an unalterable constraint that militates against a quick turn-around: the sheer volume of data (30 million records for basic demographic variables, and 7 million for detailed socioeconomic characteristics).

Generally, the users' demand for timeliness is directly related to the rate of change in a variable; for example, the number of people without jobs may shift dramatically in a few months, but the number whose mother tongue is German will not. When a variable fluctuates frequently over time, statisticians produce the best estimates possible within a reasonable time-frame; for instance, the Labour Force Survey releases its findings only two weeks after completing data collection. When frequent fluctuations are not common, users are prepared to wait while the statisticians get on with producing the estimates. With this census, it will mean assigning codes for over 500 occupations, 300 industries and 500 major fields of study, correcting errors, adjusting for non-response, and deriving thousands of tabulations. Unfortunately for the census statisticians, some variables change rapidly and others slowly, and so they face the timeliness/quality dilemma without benefit of the "rate of change" guideline.

So please, if your dilemma on May 14 is between completing the census and playing a little sandlot baseball, spare a thought for the statisticians. They have dealt with far worse in order to bring you that questionnaire, and will face more before they are able to tell you about judges or part-time employees in the gambling industry.

Ian Macredie
Editor-in-Chief



We welcome your views on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

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Highlights

■ The labour market: Year-end review

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- The year 1995 was one of weak performance compared with 1994, which had seen major employment gains, higher average earnings and reduced unemployment. The fragile resurgence in domestic demand in 1994, hit by higher borrowing costs and a labour market still plagued by high unemployment, started to lose steam early in 1995 and remained weak for most of the year.
- As a result of slow job creation and public spending cuts affecting several provinces, consumer confidence remained flat during the first two quarters of 1995 and edged up slightly in the third quarter only. For most of the year, average earnings increases remained below inflation and personal expenditure rose by less than 2% over the previous year.
- Pulled by strong economic performance, monthly employment gains had totalled 382,000 during 1994. With the pause in growth in 1995, overall employment increased by only 88,000 between December 1994 and December 1995.
- Employment losses of 36,000 in the goods sector in 1995 sharply contrasted with the 200,000 gains during 1994. On the other hand, the service sector showed employment gains of 112,000 in 1995 in addition to the growth of 177,000 the previous year.
- In contrast to 1994's healthy gains in full-time work, the employment growth in 1995 was largely part-time. Youth employment took a sharp dip of 32,000 in 1995 as their full-time employment dropped by 48,000 and part-time rose by 16,000.
- Influenced by a decline in the proportion of people in the labour force (those with jobs or looking for work), the unemployment rate of adults declined slowly during 1995, from 8.7% in January to 8.1% by year end. The rate for youths, however, climbed from 14.8% to 16.1% over the same period.
- Internationally, employment estimates published by the OECD in December 1995 show that Canada and the United States shared the highest annual average growth rate of the G-7 countries (1.6%). France came next with 1.2% while the United

Kingdom and Italy both registered 0.5%, followed by Japan with 0.2% and Germany with a loss of 0.3%.

■ Canada's unemployment mosaic in the 1990s

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- In the late 1980s the unemployment picture in Canada was very diverse: the Toronto area had very low unemployment rates and the Atlantic provinces much higher. Since then, the country has gone through a recession and a slow recovery. This has affected regional unemployment rates to various degrees, and created a pattern that differs in many ways from that of the last decade.
- For the country as a whole, 1989 marked the lowest unemployment rates before the onset of the recession of the early 1990s. However, in some areas unemployment had begun to rise between 1988 and 1989. For example, the rate in Toronto rose from 3.7% in 1988 to 4.0% in 1989 and in Regina it increased from 6.9% to 7.9%.
- As the recession deepened through 1991 and 1992, the Canadian unemployment rate reached 11.3%, almost 4 points higher than it had been in 1989. However, the effects of the recession on unemployment were uneven from region to region.
- Although metropolitan areas usually have lower unemployment rates than do surrounding areas, they tend to show wider fluctuations, the rates being much lower in good times but rising somewhat faster as the economy deteriorates. However, from 1987 to 1995, in all three Prairie provinces, metropolitan areas had higher rates, particularly in Manitoba, where Winnipeg recorded rates as much as 5 percentage points higher than the remainder of the province. Regardless of the business cycle, differences between metropolitan areas and the surrounding territories vary across the country.
- By the end of 1995, unemployment rates had fallen in most regions although these declines were modest. The lowest rates were found in the non-metropolitan areas of the Prairies where they hovered around 6%. But these rates were still above those seen around Toronto in the late 1980s.

■ Women entrepreneurs ... p. 23

- Self-employment has been booming in Canada. More than one-fourth of all employment growth from 1976 to 1994 has been self-employment.
- Self-employment has been increasing steadily for both women and men. The number of self-employed women tripled from 197,000 in 1976 to 598,000 in 1994, while the number of self-employed men almost doubled from 614,000 to 1.2 million.
- In 1994, 28% of the female self-employed were employers (that is, they had paid help), up from 25% in 1976; in contrast, the proportion of employers among men fell during this period, from 57% to 50%.
- On average, both self-employed women and men are older than their paid worker counterparts. Related to this, self-employed workers are also much more likely than paid workers to be married.
- Self-employed women tend to be concentrated in a few service industries. In 1994, 35% of women entrepreneurs worked in "other services" (including amusement and recreational services, and personal and household services). A further 17% were found in retail trade, 13% in business services and 11% in health and social services.
- Women entrepreneurs' hours of work were more polarized than those of paid workers. In 1994, 37% of women entrepreneurs usually worked less than 30 hours per week; this compares with 27% of female paid workers. Short work weeks were particularly evident among female own-account workers (those without paid help). Women entrepreneurs were also more likely to work longer hours (50 or more per week) than were female paid workers: 21% versus 4%.
- The average annual earnings of self-employed women were \$18,400 in 1993. This compares with \$25,900 for female paid workers and \$33,400 for self-employed men. Female employers earned an average of \$27,000 that year, while own-account workers averaged \$13,900.

■ Are service jobs low-paying? ... p. 29

- Service sector jobs are generally considered to be low wage jobs. This belief is not entirely misplaced, but to characterize all service jobs as low-paying

can be misleading. For example, the highest-paying industry in 1994 was in the service sector. Employees in "other financial intermediaries," which includes brokerage houses and stock exchanges, had average weekly earnings of \$1240.

- In 1994, nearly 8 million employees worked in the service industries, earning an overall average of \$520 a week, about 22% less than the goods-producing sector average of \$660.
- Ranked by average weekly earnings, many service industries in the top 20% were in the transportation, public or financial services. Although the average weekly earnings for all employees in the top 20% were above the average for the goods sector, most were not more than 25% higher.
- The range of earnings is considerably broader in the service sector than in the goods sector. The average weekly earnings in the highest-paying service industry (other financial intermediaries) were six times greater than those in the lowest-paying service industry (food services). In contrast, the highest-paying industry in the goods-producing sector (crude petroleum and natural gas) paid, on average, only three times more than the lowest (children's and other clothing and apparel manufacturing).
- The lowest-paying service industries (the bottom 20%) employed 27% of service workers in 1994, predominantly in the retail trade, food and accommodation, and personal service industries. Average weekly earnings ranged from \$210 to \$360 or about 31% to 55% of the goods sector average.

■ The many faces of unemployment ... p. 35

- The usual measure of unemployment captures the number of individuals unemployed in a given week of each month. However, another way of measuring unemployment takes account of those who experienced at least some unemployment at some time during an entire year.
- In addition, unemployment can be measured not just in terms of individuals but in terms of the families to which they belong. For example, a family unemployment rate can be calculated as the number of families with at least one member unemployed, divided by the number of families with at least one member in the labour force. Family unemployment rates, like individual rates, can be calculated with reference to a week or to an entire year.

- This article presents some of the alternative ways of looking at unemployment. Using data for 1993, the article shows that in a typical week there were an estimated 1.6 million unemployed people, but when all people who were unemployed at any time that year are considered, the number increases to 3.5 million.
- The unemployment rate for individuals was 11.2% in a typical week in 1993 while the rate for families was 18.0%. When calculated as the percentage of persons or families who experienced some unemployment over the year, the rate for individuals was 21.6% and for families it was 34.8%.

■ Unionized workers

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- From 1966 to 1993, union membership doubled (from 1.9 to 3.8 million), although the unionization rate changed little, ranging from 31% to 33%. Nearly two-thirds of the total growth in employment during this period (5.5 million) was among non-unionized workers, who increased their numbers by 3.6 million.
- The stagnation of the unionization rate can be attributed to the shift of jobs from the highly unionized goods-producing sector to the service sector, offset by the number of unionized workers in the public sector.
- The service sector's share of total employment rose from 68% to 76% from 1976 to 1992, and the unionization rate rose from 26% to 32%, matching the 1992 rate of the manufacturing industries (33%, down from 43% in 1976). The bastions of organized labour, mainly manufacturing industries, are in decline, and new companies are slow to become unionized. It seems that unions are less suited to businesses experiencing the greatest job growth.
- A comparison of typical unionized workers with their non-unionized counterparts shows little change in characteristics between 1984 and 1990: typical unionized workers were still less likely to be employed part time, but more likely to have worked a longer period for the same employer. However, their hours of work were comparable in number to those of non-unionized workers.
- Among workers putting in overtime, unionized workers were more likely than non-unionized to receive premium pay for the extra hours worked. Unionized workers were also twice as likely to be covered by a retirement plan.

■ What's new?

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- *Canada's Retirement Income Programs: A Statistical Overview* presents a descriptive and statistical picture of the three major pension income programs in Canada – government-administered/sponsored, employer-sponsored and individually sponsored.
- *Literacy, Economy and Society: Results of the First International Adult Literacy Survey* reports findings from the first large-scale study of literacy in industrialized nations. The survey had two objectives: to develop literacy scales that enable the comparison of people with widely varying abilities, and to compare the literacy skills of people in different countries.
- *Households' Unpaid Work: Measurement and Valuation* assesses trends in unpaid work from 1961 to 1992. In addition to the unpaid work households do for themselves, such as cooking and cleaning, the definition now includes volunteer work and helping friends, relatives and others, and extends coverage to all persons aged 15 and over living in private households.
- The Analytical Studies Branch has released several new studies. *Restructuring in the Canadian Manufacturing Sector from 1970 to 1990: Industry and Regional Dimensions of Job Turnover* divides the manufacturing sector into five groups of related industries, and identifies those concentrated in different regions of the country. The analysis is divided into two time periods to assess whether the nature of job turnover in the 1970s differs from that of the 1980s.
- *Why Has Inequality in Weekly Earnings Increased in Canada?* presents the basic facts underlying a growing inequality in earnings. It also discusses several hypotheses recently put forward to explain the trend.
- *Social Transfers, Changing Family Structure and Low Income among Children* shows that the percentage of children living in low income families has risen and fallen with recessions and expansions since the 1970s; there has been relatively little change in the actual incidence of low income among families with preschool children.
- In the last several years, the Labour Force Survey (LFS) has been undergoing a complete redesign. In the final phase, to be completed by January 1997, a

new questionnaire and processing system will be introduced. In preparation for the introduction of the new questionnaire, the LFS has implemented changes to some of its estimates: it has refined the definition of part-time and full-time employment; changed estimates of the reason(s) for working part time; restricted time lost (work absence) to employees only; limited job descriptions to those who have worked within the last 12 months; and suspended publication of estimates of discouraged workers, involuntary part-time workers and alternative measures of unemployment.

- On June 13 to 15, a conference on The Changes in Working Time in Canada and the United States will be held in Ottawa. Topics to be addressed include changing hours of work, non-standard employment, part-time work, worksharing, working time of women, life cycle considerations of working hours, and policy dimensions.

■ Key labour and income facts ... p. 60

- This issue proposes a new format for this department. ☐

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The labour market: Year-end review

Cécile Dumas

Steady growth in real gross domestic product (GDP) in 1994 had launched the Canadian economy on an upward trend that put an end to the so-called "jobless recovery" period. However, this scenario faded in 1995 (Chart A). As a result, labour market conditions stayed almost at a standstill, with employment rising at a much slower pace than the year before and the overall unemployment rate never falling below 9.2%. What made the economy slow down in 1995 and how did this affect the labour market? This year-end review of the labour market explores these questions.

Drastic shifts in the economic outlook

Stimulated by strong foreign demand,¹ Canadian output growth was sustained throughout 1994. Businesses increased their capital utilization, registered significant operating profits, invested in plant and equipment and enlarged their workforces. Consumers, encouraged by better labour market conditions and average earnings that increased faster than inflation, were less reluctant to spend; personal expenditure rose by 3.0% (annual average), the highest increase since the pre-recessionary years. On the other hand, governments seeking to control soaring deficits started to reduce their total expenditures.

In 1995, these positive influences weakened substantially. In an effort to control an "overheating economy" that could result in an inflationary spiral, the U.S. Federal Reserve slowly raised interest rates in the fall of 1994 and kept

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Chart A
Poorer economic performance in 1995 slowed employment growth.



Sources: Labour Force Survey, and National Accounts and Environment Division

them relatively high until spring 1995. The higher rates had a major effect on consumer spending in the United States, our largest trading partner. Consequently, there was a sharp drop in consumer goods shipped across the border,² especially motor vehicles. On the other hand, exported industrial goods were less affected by the increase in interest rates as, most probably, orders had been placed before the rise occurred. Therefore, exports of machinery and equipment as well as pulp and paper kept their upward trends until at least September 1995.

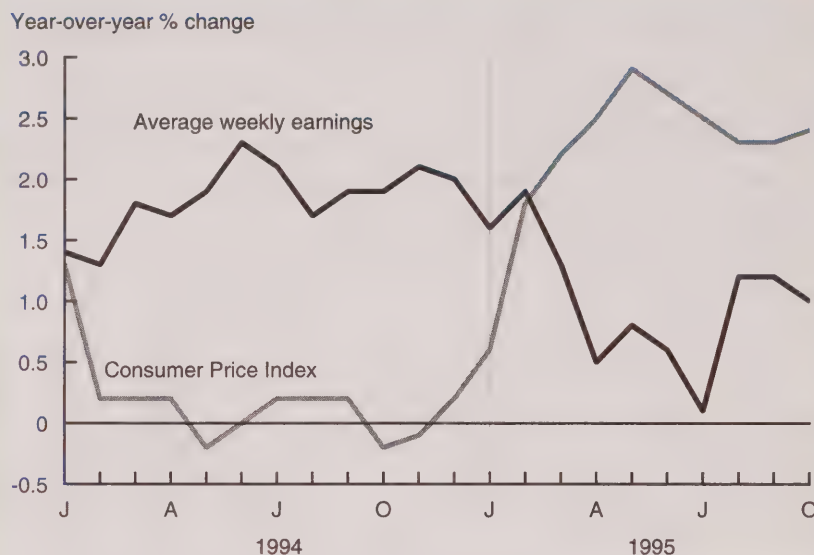
Canadian interest rates followed suit and only started to ease in April 1995. The fragile resurgence in domestic demand in 1994, hit by higher borrowing costs and a labour market still plagued by high unemployment, started to lose

steam early in 1995 and remained weak for most of the year. As inventories started to build up, businesses reduced capital utilization in their factories and slowed their hiring activities. Both corporate operating profits and business investment grew marginally, while governments further reduced expenditures during the first three quarters.

This article is based on information available as of January 5th, 1996. Unless otherwise noted, monthly data have been seasonally adjusted to provide a better picture of underlying trends. Seasonal movements are those caused by regular annual events such as climate, holidays, vacation periods, and cycles related to crops and production. Seasonally adjusted series still contain irregular and longer-term cyclical fluctuations.

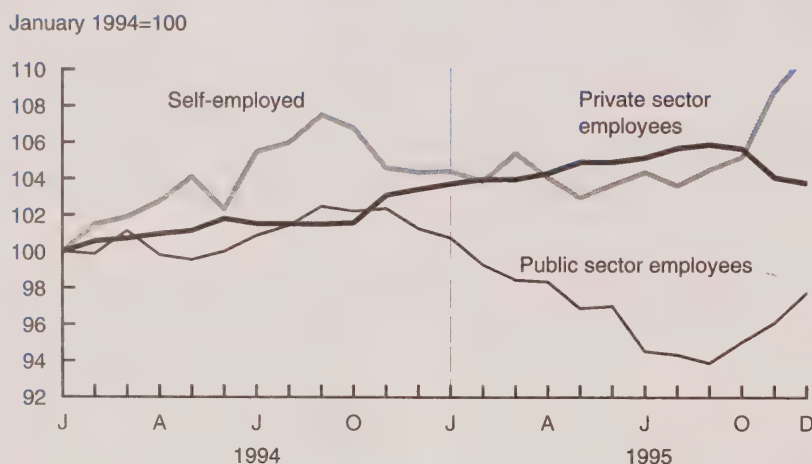
As a result of slow job creation (as indicated by the Help-wanted Index,³ which has been on a downward trend since April) and public spending cuts affecting several provinces, consumer confidence remained flat during the first two quarters of 1995 and edged up only slightly in the third.⁴ For most of the year, average earnings increases remained below inflation (Chart B) and personal expenditure rose by less than 2% over the previous year. Consequently, spending on big ticket items such as houses and automobiles remained very weak. Housing starts dropped significantly in 1995 to an annualized rate of 112,000 new units for the first 10-month period, after recording 154,000 in 1994. In fact, the October annualized rate dropped to 97,000, a level not seen since the recessionary period of 1982. During this 10-month period, the number of new motor vehicles sold by dealers dropped by 5.1%. Department store sales, which had

Chart B
Earnings growth did not keep pace with inflation in 1995.



Sources: Survey of Employment, Payrolls and Hours, and Prices Division

Chart C
Although at a slower pace, employment improved in the private sector in 1995.*



Source: Labour Force Survey

* See Note 5 for definitions.

been steadily increasing since early 1994, levelled off in July 1995 and remained relatively flat thereafter.

Effect on the labour market

Pulled by a strong economic performance, monthly employment gains totalled 382,000 during 1994. The private sector generated the bulk of the growth, particularly in many of the goods-producing industries but also in the service sector. Major gains were registered among the self-employed as contracting-out for professional services flourished with the overall economic growth. On the other hand, employment in the public sector grew only marginally (Chart C).⁵

With the pause in growth in 1995, overall employment increased by only 88,000 between December 1994 and December 1995.⁶ Overall, the whole private sector including employees and the

self-employed kept its upward trend until at least September, before registering wider variations from October on. Losses were recorded in the public sector, with total employment declining substantially during most of 1995.

No employment growth in the goods sector ...

In sharp contrast to the employment increases of over 200,000 during 1994, losses in some goods sector industries in 1995 more than offset the gains in others, so the year ended with 36,000 fewer workers than in December 1994.

Manufacturing industries, accounting for over half the workers in the goods sector, had gained over 125,000 workers in 1994, but employment fluctuated in 1995. Swings in economic activity resulted in additions of over 50,000 in both February and May, only to be offset by almost equal losses in each of the following months. Further declines in November and December left employment virtually unchanged from December 1994 (Chart D).

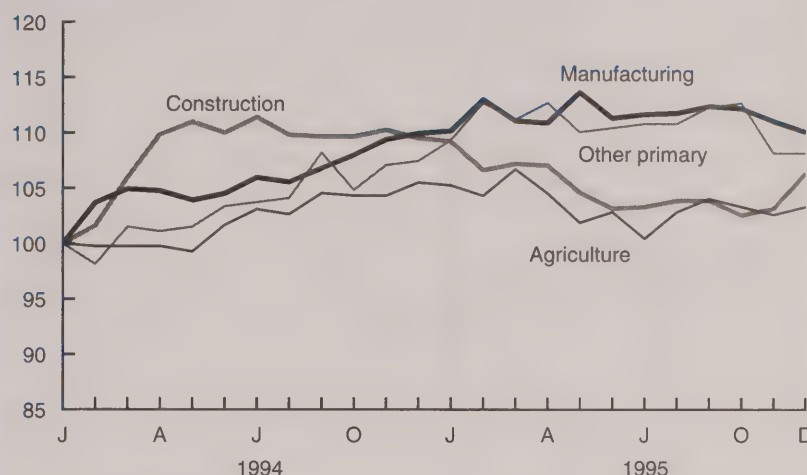
The dampening effect of higher interest rates on requests for mortgage loans slowed construction activity in the autumn of 1994, causing fluctuations in employment in the latter part of the year. In 1995, despite the slow ease in mortgage rates that started in February, housing starts continued to drop. This weak activity, coupled with slower investment in non-residential building, resulted in steep slides in employment in February and May, and to a lesser extent in June, leaving employment in construction down 22,000 at year end compared with December 1994.

Employment declines in agriculture in 1995 more than wiped out the 1994 gains, while there was a no-growth situation in forestry and mining in 1995 that contrasted with the previous year's employment

Chart D

In contrast to 1994, employment growth in the goods sector was almost flat in 1995.

January 1994=100



Source: Labour Force Survey

gains of 15,000 (unadjusted) or over 6%.

... while service sector gains slowed

The service sector, with nearly 10 million workers, showed employment gains of 177,000 during 1994. But in contrast to the goods sector, there was additional growth of 112,000 workers in the service sector in 1995 (Chart E).

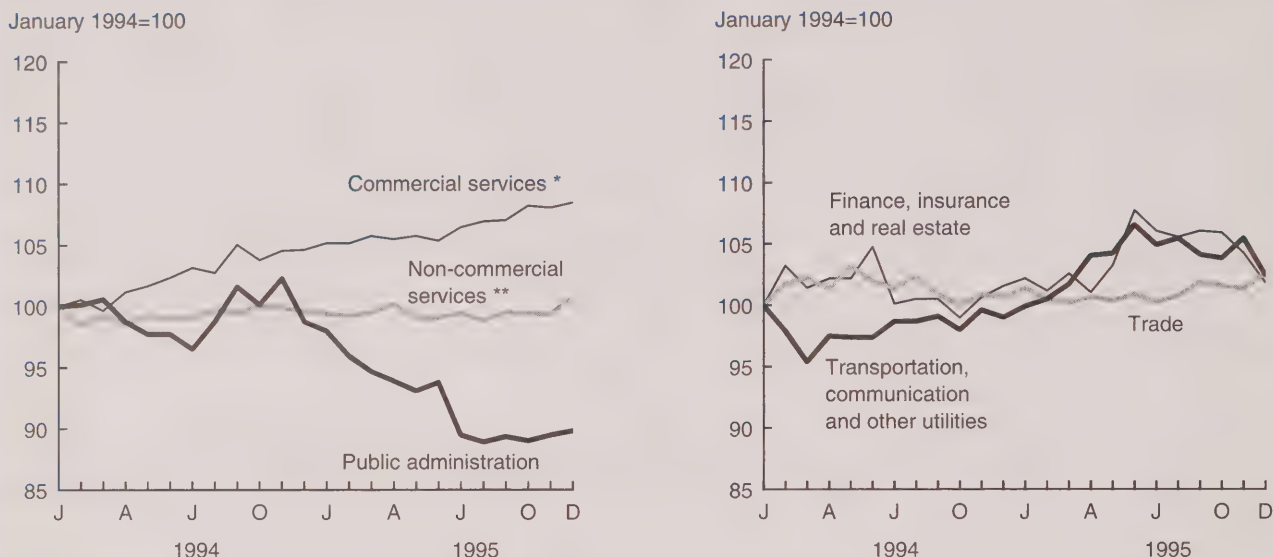
Community, business and personal services,⁷ accounting for over half the service sector workforce, continued their upward trend and added 110,000 workers during 1995. Most of this increase was attributable to the commercial component, which includes industries such as amusement and recreation, business services, personal and household services, and accommodation, food and beverage services. Although at a slower pace than the previous year, business services continued to register the largest gains (almost 50,000, unadjusted)

within the commercial services. On the other hand, government cuts had an effect on employment in most of the non-commercial services, such as education, health and social services. Employment in these services had levelled off in 1994 and the trend continued in 1995.

As a result of weak consumer demand, which affected retail sales from the summer on, trade experienced variations in employment and ended 1995 with 45,000 more workers. Employment growth in finance, insurance and real estate occurred only in March, May and June, reflecting a short improvement in house sales helped by the easing of mortgage loan rates, partly in Ontario but mainly on the west coast. Transportation, communication and other utilities industries posted employment growth in 1995, with 34,000 more workers by year end. In sharp contrast to 1994, transportation and storage took the bulk of this increase in 1995, mostly because of shipments of

Chart E

Employment in commercial services did relatively well in 1995.



Source: Labour Force Survey

* Commercial services includes amusement and recreation, business services, personal and household services, accommodation, food and beverage services, membership organizations (except religious), and other services.

** Non-commercial services includes education, health and social services, and religious organizations.

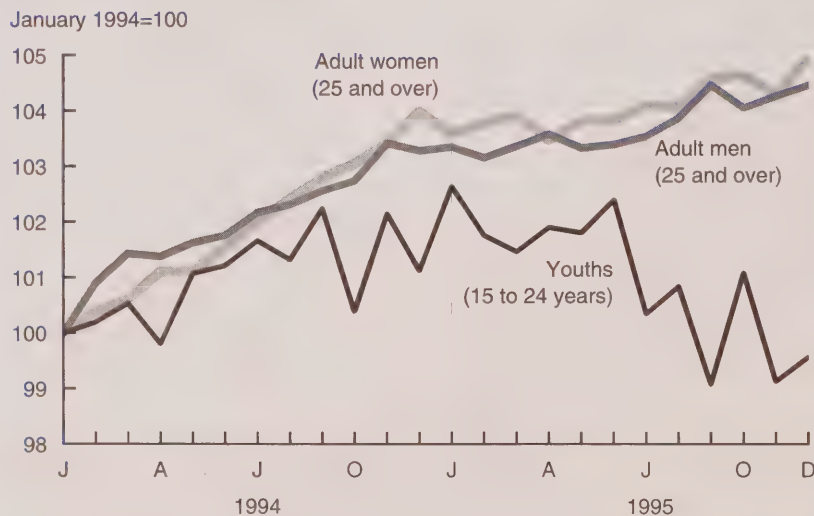
machinery and equipment to the United States and across Canada. There was almost no growth in communications, while employment in other utilities continued its decreasing trend started in 1994. Those most directly affected by government cuts at all levels were public administration employees,⁸ whose numbers were reduced by 79,000 during 1995.

Full-time employment growth slowed except among adult men

Both adult and young workers had benefited from the strong employment growth in 1994 but only adults (25 years and over) did in 1995 and then at a much slower pace (Chart F). As well, in contrast to 1994's healthy gains in full-time work, the growth in 1995 was made up largely of part-time employment (Chart G).

Chart F

After modest growth the previous year, youth employment registered a large decline in 1995.



Source: Labour Force Survey

While full-time work accounted for over half (57%) of the 72,000 increase in employment of adult men during 1995, over two-thirds (69%) of the 48,000 rise in adult women's employment was part-time. In the meantime, youth employment took a sharp dip of 32,000 as their full-time employment dropped by 48,000 and part-time rose by 16,000. Losses were more significant among young women, who accounted for more than two-thirds of the total drop in youth employment.

Unemployment declined but ...

Since September 1994, unemployment had remained below 1.5 million and it had fallen to 1.4 million by September 1995, certainly an encouraging signal. But a reduction in the number of people unemployed in the country is good news only if the decline can be attributed to employment gains. Unfortunately, this decrease was only partly attributable to employment growth; most of it resulted from a drop in labour force participation.

Adults saw their unemployment rate decline slowly during 1995 from 8.7% in January to 8.1% by year end, while the rate for youths climbed from 14.8% to 16.1% over the same period.

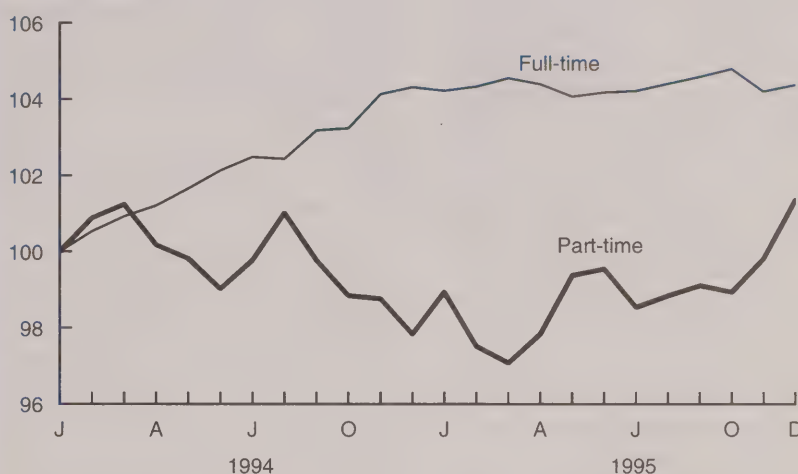
... people stayed away from the labour market

In theory, good labour market conditions with strong job creation set the scene for higher labour force participation as more jobless people start to look for work. Those conditions were present in 1994, yet the overall labour force participation rate (the proportion of people aged 15 and over with jobs or looking for work) fell rather than rose. Consequently, it is no surprise that the stagnant conditions of 1995 further diminished people's perceptions about employment opportunities. Thus, the participation

Chart G

In 1995, part-time took over as the key component of employment growth.

January 1994=100



Source: Labour Force Survey

rate went down again in 1995, reaching an annual average of 64.8%, its lowest point since 1983. (It had been higher (66.7%) even during the 1991 recession year.)

Men continued their long-term decline begun almost three decades ago. Their participation rate in 1995 averaged 72.5%, a drop of 3.8

percentage points since 1990 (Table 1). Over this five-year period, the most significant change occurred among young men and to a lesser extent among those forming the core of the male workforce, the 25 to 54 year-old group. For those aged 55 and over, early retirement, whether planned or not, partly explains the decrease.

Table 1
Annual average labour force participation rates

	1990	1991	1992	1993	1994	1995	% point change 1990-1995
	%						
Men	76.3	75.1	74.0	73.5	73.3	72.5	-3.8
15-24 years	71.4	69.1	67.0	65.5	65.2	63.9	-7.5
25-54 years	93.3	92.5	91.6	91.6	91.4	91.0	-2.3
55 and over	37.4	36.0	35.2	34.0	34.0	32.6	-4.8
Women	58.7	58.5	58.0	57.8	57.6	57.4	-1.3
15-24 years	67.0	65.5	63.6	61.5	60.6	60.4	-6.6
25-54 years	75.7	76.0	75.6	76.0	75.7	75.9	0.2
55 and over	17.3	16.9	17.0	17.0	17.2	16.5	-0.8

Source: Labour Force Survey

As mentioned in the year-end review of the 1991 labour market (Cross, 1992), women's overall participation rate had dropped slightly for the first time. Since then, it has continued to slide, reaching 57.4% in 1995. After five years of decline, what was seen as a "puzzling" situation – since women's rate had steadily increased from the mid-seventies on (Akyeampong, 1995) – may no longer be a "blip" in the statistics but rather a reversed trend. Young women staying in school longer than before (Sunter, 1994) drove the overall rate down as their older counterparts (25 to 54 years old) kept relatively stable rates.

Across the country

British Columbia and Alberta, benefiting from population growth and strong business investment – which kept consumer demand alive with house and retail sales higher than in the rest of the country – both ended 1995 with higher employment (23,000 and 13,000, respectively) than in December 1994. Saskatchewan recorded a loss of 6,000 while Manitoba had no significant change.

After experiencing strong employment variations in manufacturing (because of lower exports as well as weak domestic demand, particularly for motor vehicles) and large cuts in the public sector, Ontario ended 1995 at almost the same level as December 1994. Quebec, being less reliant on the automobile sector, recorded the largest gain (44,000), mostly in the service-producing industries except public administration. In the Atlantic provinces, New Brunswick's employment declined by 5,000 while Nova Scotia continued its 1994 upward movement with an increase of 12,000. There were also gains in Prince Edward Island and Newfoundland (3,000 and 2,000, respectively).

Table 2
Annual average unemployment rates by province

	1994	1995	% point change
	%		
Canada	10.4	9.5	-0.9
Newfoundland	20.4	18.3	-2.1
Prince Edward Island	17.1	14.7	-2.4
Nova Scotia	13.3	12.1	-1.2
New Brunswick	12.4	11.5	-0.9
Quebec	12.2	11.3	-0.9
Ontario	9.6	8.7	-0.9
Manitoba	9.2	7.5	-1.7
Saskatchewan	7.0	6.9	-0.1
Alberta	8.6	7.8	-0.8
British Columbia	9.4	9.0	-0.4

Source: Labour Force Survey

Annual average unemployment rates declined in all provinces (Table 2). Most of the large metropolitan areas across Canada had registered major declines in unemployment rates in 1994. However, the slower economic growth of 1995 moderated the downward trend, with a few exceptions in the western provinces (Gower, 1996).

International comparisons

Canada was not the only country of the G-7⁹ to experience smaller output growth in 1995 than in the previous year. During the first eight months of 1995, there was almost no change in industrial production in the United Kingdom or in the United States and a slight decline in France. Only Germany, Japan and Italy registered upward trends in their industrial production during the same period. In terms of employment, estimates published by the OECD in December 1995 show that Canada and the United States shared the highest annual average growth rate (1.6%, see Note 6). France was next with 1.2% while the United Kingdom and Italy both registered 0.5%, followed by Japan with 0.2% and Germany with a loss of 0.3%.

Summary

As much as 1994 was a year of strong economic growth with major employment gains, higher average earnings and reduced unemployment, 1995 was a year of weak performance. Output growth slowed very early in the year mainly because of reduced exports to the United States but also because domestic demand, which had started the year on an upswing, quickly responded to the slower economic activity with lower consumer spending on durable goods. The increase in employment was less than one-quarter of that recorded during 1994 and mostly in less lucrative part-time work. The unemployment situation hardly moved as more people, especially youths, stayed away from the labour force.

Since this article was prepared, Statistics Canada has made some changes to the Labour Force Survey. These modifications took effect February 9, 1996 with the release of the January 1996 data. Historical series have also been adjusted back to 1976. For more information, see "What's new" in this issue.



■ Notes

1 The share of real GDP accounted for by exports has been on the increase since the recent recession and now amounts to nearly 40%; therefore, strong variations in that component of GDP have a substantial effect on the Canadian economy.

2 After leading the large gains in real GDP in 1994 with well over \$12 billion in each of the last three quarters, total exports increased by only \$4.3 billion in the first quarter of 1995 and dropped sharply (-\$6.9 billion) in the second quarter. They bounced back in the third quarter with a rise of \$5.9 billion mostly thanks to a notable jump in automobile shipments to the United States in August. But that month was an exception and as the U.S. economy slowed down in the fall, exports fell again in October.

3 The Help-wanted Index is compiled from the number of help-wanted ads published in 22 newspapers in 20 major metropolitan areas. The index is an indicator of the intent of employers to hire new workers.

4 The Conference Board's Index of Consumer Attitudes rose marginally in the third quarter of 1995 for the first time in four quarters, although it remained below the 1994 average.

5 The self-employed are working owners of businesses (incorporated or unincorporated), professional practices or farms. On Chart C, the line labelled "self-employed"

also includes unpaid family workers (persons who work without pay on a farm or in a business or professional practice owned and operated by another family member living in the same dwelling). Public sector employees are those working for government departments or agencies, crown corporations, or publicly funded schools, hospitals or other institutions. Private sector employees are all other wage and salary earners.

In Chart C, the private sector refers to the lines for self-employed and private sector employees.

6 The annual average growth rate of overall employment in 1994 was 2.1%; it was lower in 1995 (1.6%). However, annual averages tend to mask large monthly variations. For example, annual average employment in 1994 was 277,000 higher than the 1993 annual average. The 1995 annual average exceeded 1994 by 214,000, an increase not much smaller than the previous year. On the other hand, when one looks at the variations in monthly employment levels registered during 1995, the overall increase in employment (between December 1994 and December 1995) was only 88,000, considerably smaller than the increase of 382,000 during 1994 (between December 1993 and December 1994). For this reason, the following analysis on the changes in employment will use monthly changes to better reflect the evolving labour market conditions during 1995.

7 Community, business and personal services are split into commercial and non-commercial services in Chart E.

8 Public administration employees is a sub-group of public sector employees. See note 5 for a definition of the latter.

9 The G-7 countries are Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.

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Perspectives on Labour and Income

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Canada's unemployment mosaic in the 1990s

Dave Gower

One of the most serious structural problems affecting the Canadian labour market is regional inequality. The traditional picture has been one of high unemployment in such areas as the Atlantic provinces, combined with much lower rates elsewhere.

This picture was especially evident in the late 1980s. After several years of economic growth, the economies of Toronto and nearby areas were experiencing tight labour markets, as evidenced by low unemployment rates and a proliferation of "help-wanted" signs. At the same time, double-digit unemployment rates remained in such areas as the Gaspé and rural Newfoundland (Gower, 1989).

Since then, Canada has gone through a recession and a slow recovery. This has affected regional unemployment rates to various degrees, and created a pattern that differs in many ways from that of the late 1980s (see *Definitions*).

Entering the recession: patterns differed

For the country as a whole, 1989 marked the lowest unemployment rates before the onset of the recession of the early 1990s. However, in some areas unemployment had begun to rise between 1988 and 1989.

For example, the unemployment rate in Toronto rose from 3.7% in 1988 to 4.0% in 1989. Moreover, four areas had unemployment rate increases of one percentage point or more: Prince Edward Island (12.9% to 14.0%), Sherbrooke (7.1% to 9.2%), Ottawa-Hull (5.1% to 6.1%)

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Definitions

As a rule, provinces are used to analyze regional differences. In this paper, however, **census metropolitan areas (CMAs)** are the main unit of measurement. The Labour Force Survey (LFS) defines a CMA as the "main labour market area of an urbanized core (or continuously built-up area) having at least 100,000 inhabitants." In the LFS files, CMA benchmark estimates (derived from the Census of Population) were tabulated back to 1987. As a result, the series contained in this paper can be tabulated only as far back as that year. The CMAs are then subtracted from the provinces, to produce provincial residuals consisting of smaller urban and rural areas.

and Regina (6.9% to 7.9%). The downturn leading to the recession was not reflected at the same time or with equal intensity in all regional unemployment rates (Table 1).

As the recession deepened through 1991 and 1992, the Canadian unemployment rate rose to reach 11.3%, almost 4 points higher than it had been in 1989 (7.5%). However, the effect on unemployment was not evenly spread.

The Atlantic area, which had higher rates to begin with, had a slower rate of growth in unemployment (12.2% to 14.9%, or 2.7 points). The Quebec increase between 1989 and 1992 was close to the national average (9.3% to 12.8%, or 3.5 points). A much more dramatic rise was seen in Ontario, which jumped nearly 6 percentage points, from 5.1% to 10.9%.

In contrast, western unemployment rate increases were less than 2 points (7.4% to 9.3% in the Prairies, 9.1% to 10.5% in British Columbia).

Obviously, these provincial residuals contain many local variations in labour market conditions. Such detail is outside the scope of this article; readers who wish to see data on smaller areas can consult Statistics Canada's *Labour Force Annual Averages*.

The employment figures and unemployment rates used in this article are LFS annual averages. The LFS measures employment and unemployment by place of residence rather than by place of work. So, for example, the employment figure associated with a region refers to the number of residents of that region who are employed, not to the number of persons who work within the region.

The more detailed regions show even greater variation. Toronto and Oshawa jumped well over 7 points between 1989 and 1992. In contrast, Saint John showed little effect from the recession (from 10.7% in 1989 to 11.4% in 1992). Perhaps more remarkable, unemployment rates remained stable or actually dropped in some western localities, such as non-metropolitan Manitoba, Regina, and Victoria. Furthermore, in most other western regions the increase was relatively small.

Unemployment is the end product of a complex combination of supply and demand factors, but a key explanation for the stability of western unemployment rates can be found in employment trends. The number of jobs held up well in the West, particularly in Alberta and British Columbia. For example, Vancouver employment increased more than 50,000 between 1989 and 1992, while in Toronto it declined by over 140,000 (Appendix Table 1).

The big story now: Toronto and environs staying cool

The economic pressures in the Toronto area vanished dramatically with the onset of the recession in 1990. As of the end of 1995, there was no sign of their returning. The Toronto CMA itself, with an annual average unemployment rate of 8.5%, was far from resuming its status of "hotspot" enjoyed seven

years earlier. However, its unemployment rate had improved substantially from 11.4% three years earlier.

Other CMAs in southern Ontario were also showing moderate though not spectacular improvement in their unemployment picture. Only Hamilton could boast a rate below 7%.

In the Atlantic and Quebec regions, unemployment rates remained well into the double digits, with the sole exception of Halifax.

The lowest 1995 unemployment rates were to be found in the West, specifically in the non-metropolitan areas of the Prairies. Even these rates, however, were near 6%, well above the rates seen around Toronto in the late 1980s.

Table 1
Unemployment rate by region

	1987	1988	1989	1990	1991	1992	1993	1994	1995
	%								
Canada	8.9	7.8	7.5	8.1	10.4	11.3	11.2	10.4	9.5
Atlantic	13.9	12.3	12.2	12.7	14.0	14.9	15.4	14.8	13.4
St. John's	12.5	11.2	10.8	11.9	13.3	15.6	14.1	14.1	12.6
Non-CMA Newfoundland	20.8	19.2	18.2	19.8	21.2	22.8	23.7	24.3	21.9
Prince Edward Island	13.1	12.9	14.0	14.9	16.9	17.9	18.1	17.1	14.7
Halifax	9.0	7.9	6.9	7.9	9.1	10.0	11.2	9.4	8.9
Non-CMA Nova Scotia	14.6	11.8	11.9	12.4	14.1	15.3	17.1	16.1	14.4
Saint John	13.0	11.2	10.7	9.6	11.8	11.4	10.5	12.2	10.3
Non-CMA New Brunswick	13.2	12.2	12.8	12.6	13.0	13.2	13.1	12.5	11.8
Quebec	10.3	9.4	9.3	10.2	12.0	12.8	13.2	12.2	11.3
Chicoutimi-Jonquière	10.8	11.2	9.5	10.2	12.8	14.1	15.3	14.3	15.3
Québec	9.1	8.5	6.9	7.6	9.5	11.4	11.2	11.3	10.3
Trois-Rivières	10.8	10.3	9.4	9.4	11.4	15.0	13.3	13.0	11.2
Sherbrooke	10.6	7.1	9.2	8.9	13.2	13.5	11.7	9.3	11.1
Montréal	10.0	9.3	9.2	10.2	12.3	13.2	13.7	12.5	11.3
Non-CMA Quebec	11.2	10.2	10.4	11.3	12.6	12.7	13.3	12.3	11.5
Ottawa-Hull *	7.5	5.1	6.1	5.9	7.3	8.8	8.4	8.2	9.8
Ontario	6.1	5.0	5.1	6.3	9.6	10.9	10.6	9.6	8.7
Sudbury	11.6	9.8	8.0	8.2	10.2	11.9	10.3	10.6	9.1
Oshawa	6.2	5.5	4.1	6.8	9.7	11.9	11.4	9.8	8.7
Toronto	4.5	3.7	4.0	5.3	9.7	11.4	11.0	10.3	8.5
Hamilton	6.4	5.8	5.2	6.3	10.0	10.7	11.4	8.2	6.6
St. Catharines-Niagara	9.4	6.4	7.2	7.4	11.4	12.5	13.9	10.4	9.1
London	7.1	4.7	4.3	6.0	8.0	8.8	8.7	7.7	8.0
Windsor	9.1	7.7	8.2	9.0	12.5	12.9	11.5	9.1	8.5
Kitchener-Waterloo	5.8	5.2	5.0	6.5	9.4	9.6	8.9	6.6	7.9
Thunder Bay	8.2	6.1	5.6	7.9	9.5	10.0	11.4	11.0	8.1
Non-CMA Ontario	7.1	6.2	6.0	7.5	10.0	10.8	10.5	9.9	9.4
Prairies	8.7	7.9	7.4	7.1	8.2	9.3	9.3	8.4	7.6
Winnipeg	7.9	8.3	7.9	7.9	10.1	11.3	10.9	10.9	8.2
Non-CMA Manitoba	6.5	7.1	7.0	6.2	6.7	6.7	6.4	6.0	6.0
Regina	6.9	6.9	7.9	6.8	6.5	7.9	8.3	7.2	7.4
Saskatoon	9.7	9.4	9.2	9.0	10.6	11.0	9.8	9.1	8.2
Non-CMA Saskatchewan	6.6	6.9	6.6	6.3	6.2	7.2	7.2	6.1	6.1
Calgary	9.1	7.9	7.0	7.0	8.7	10.0	10.4	9.2	8.1
Edmonton	11.1	9.1	8.4	7.8	9.4	10.8	11.2	10.4	8.9
Non-CMA Alberta	8.9	7.4	6.5	6.4	6.9	7.9	7.7	6.4	6.5
British Columbia	12.0	10.3	9.1	8.4	10.0	10.5	9.7	9.4	9.0
Vancouver	11.5	9.4	7.4	7.1	8.4	9.3	9.3	9.0	8.3
Victoria	10.9	10.2	8.9	7.7	8.2	8.3	8.6	7.6	9.2
Non-CMA British Columbia	12.9	11.5	11.4	10.1	12.6	12.6	10.5	10.3	9.7

Source: Labour Force Survey

* Because the Ottawa-Hull CMA includes portions in both Ontario and Quebec, it is listed separately from these provinces. Each provincial total includes the relevant portion of the CMA.

Ranks help tell the story

One way to demonstrate how the distribution of unemployment rates has shifted is to use ranks, starting with number 1 for the region with the lowest unemployment rate (Table 2). To simplify the examination this section concentrates on three years: 1989, just prior to the last recession, 1992, the year with the highest national unemployment rate,¹ and 1995, the most recent data available.

Toronto dropped from first to nineteenth spot as the recession deepened, but improved by 5 places by 1995. Oshawa, undoubtedly following the fortunes of the auto industry, plunged from second to twenty-first place between 1989 and 1992, and then regained 6 of those rank positions. Non-metropolitan Ontario, which was in seventh spot in 1989, dropped to fourteenth by 1992 and slipped further to twenty-first position in 1995.

West of Ontario, many areas improved their relative position dramatically between 1989 and 1992. Many maintained these favourable positions into 1995.

Perhaps the most dramatic roller-coaster ride was experienced by Victoria, which soared 17 rank positions from twenty-second to fifth spot by 1992, and then dropped 15 positions by 1995 (Table 3).

Ottawa-Hull ranked eighth in unemployment rate in 1989, and kept this approximate position through 1992. Between 1992 and 1995, however, it fell sharply to twenty-third spot, reflecting public sector cut-backs.

In Quebec and the Atlantic regions, rank shifts were generally less dramatic. Most of these areas had relatively high unemployment before the recession, and followed the overall trends during the next six years. There were exceptions,

Table 2
Regions ranked * by unemployment rate

	1989	1992	1995	Loss or gain in position **	
				1989 to 1992	1992 to 1995
St. John's	30	33	31	-3	2
Non-CMA Newfoundland	35	35	35	-	-
Prince Edward Island	34	34	33	-	1
Halifax	11	10	16	1	-6
Non-CMA Nova Scotia	32	32	32	-	-
Saint John	29	20	24	9	-4
Non-CMA New Brunswick	33	27	30	6	-3
Chicoutimi-Jonquière	27	30	34	-3	-4
Québec CMA	12	18	25	-6	-7
Trois-Rivières	26	31	27	-5	4
Sherbrooke	24	29	26	-5	3
Montréal	25	28	28	-3	-
Non-CMA Quebec	28	25	29	3	-4
Ottawa-Hull	8	6	23	2	-17
Sudbury	19	22	18	-3	4
Oshawa	2	21	15	-19	6
Toronto	1	19	14	-18	5
Hamilton	5	13	4	-8	9
St. Catharines-Niagara	15	23	19	-8	4
London	3	7	7	-4	-
Windsor	20	26	13	-6	13
Kitchener-Waterloo	4	9	6	-5	3
Thunder Bay	6	12	8	-6	4
Non-CMA Ontario	7	14	21	-7	-7
Winnipeg	18	17	10	1	7
Non-CMA Manitoba	13	1	1	12	-
Regina	17	3	5	14	-2
Saskatoon	23	16	11	7	5
Non-CMA Saskatchewan	10	2	2	8	-
Calgary	14	11	9	3	2
Edmonton	21	15	17	6	-2
Non-CMA Alberta	9	4	3	5	1
Vancouver	16	8	12	8	-4
Victoria	22	5	20	17	-15
Non-CMA British Columbia	31	24	22	7	2

Source: Labour Force Survey

Note: Small changes in rank can be caused by differences in the unemployment rate that are below acceptable levels of reliability. Rank variations of less than 5 should be treated with caution.

* Rank 1 corresponds to the lowest unemployment rate each year.

** A negative number indicates a worsening of relative position, that is, the rank has increased.

however. Québec CMA dropped 6 ranks from 1989 to 1992, and a further 7 in the following three years, moving from twelfth to twenty-fifth place over the six years. Halifax slid from tenth to sixteenth place between 1992 and 1995 (see *Dispersion increases with prosperity*).

Life in the big city...

So far the discussion has focused on the various regions of the country. But how about metropolitan areas as a whole? How does their unemployment picture compare with the rest of the country?

Dispersion increases with prosperity

As already noted, areas with the lowest unemployment rates in the late 1980s also had the greatest increases in the following three years, suggesting that unemployment distribution is closely tied to the state of the economy. In good times, unemployment is distributed much less evenly.

The evenness or inequality of the distribution of unemployment can be measured in many different ways. For

this study, the average difference of regional unemployment rates from the Canada figure was used to represent dispersion of unemployment.

In this paper, dispersion is calculated as a weighted mean of the differences between the regional and national unemployment rates. Specifically, the absolute difference between each regional rate and the national rate is multiplied by the regional labour force.

These products are summed, and the total is divided by the national labour force, to produce aggregate dispersion. Finally, the dispersion is divided by the national unemployment rate to produce percent dispersion.

In equation form, the percent dispersion is calculated as:

$$\frac{(\sum |U_r - U_c| \times LFr) / LFc}{U_c}$$

where

U_r = unemployment rate in region r

U_c = national unemployment rate

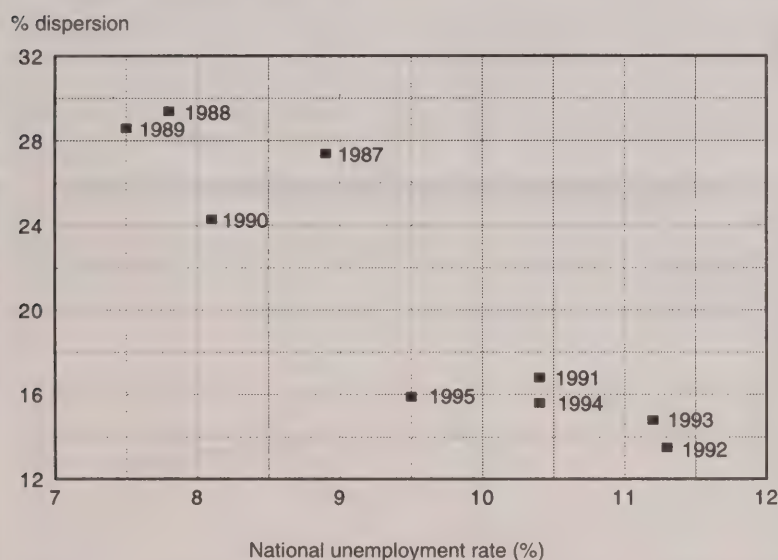
LFr = labour force in region r

LFc = national labour force

During the late 1980s, when unemployment was quite low in some areas, the dispersion of unemployment was high, approaching 30% in 1988 and 1989. This reflected the fact that areas such as non-metropolitan Newfoundland did not participate in the prosperity.

Since the former hotspots in southern Ontario suffered disproportionately from the recession, unemployment became more evenly distributed, with dispersion dropping to around 14% in 1992. By 1995, the national unemployment rate was down to 9.5% and unemployment dispersion was back up to approximately 16%. Both movements are modest compared with those of the late 1980s, however.

Unemployment dispersion varies inversely with the national unemployment rate.



Source: Labour Force Survey

Over the period studied, unemployment rates were lower in metropolitan areas than elsewhere (Chart). But they were also more variable, being much lower in good times and rising somewhat faster as the economy deteriorated. One explanation may be the industry mix (for example, agriculture may not suffer from cyclical fluctuations in demand as much as manufacturing).

Differences between metropolitan areas and the surrounding ter-

ritories vary across the country. In Newfoundland in 1994 and 1995, St. John's experienced unemployment rates around 10 percentage points lower than the remainder of the province (Appendix Table 2), a contrast undoubtedly affected by the decline of fishing. In Nova Scotia, the Halifax rate varied between 5 and 7 points below that for the rest of the province.

In New Brunswick, Quebec, Ontario and British Columbia, metropolitan area unemployment rates

were typically less than 2 percentage points below non-metropolitan rates. However, in all three Prairie provinces, the opposite was true: metropolitan areas had higher unemployment rates. This was particularly noticeable in Manitoba, where Winnipeg has been as much as 5 percentage points higher than the remainder of the province. This gap was widest between 1991 and 1994; before then the difference was closer to one percentage point.

Table 3
The largest changes* in unemployment rate rank

1989 to 1992		1992 to 1995	
Improved position			
Victoria	17	Windsor	13
Regina	14	Hamilton	9
Non-CMA Manitoba	12	Winnipeg	7
Saint John	9	Oshawa	6
Non-CMA Saskatchewan	8	Toronto	5
Vancouver	8	Saskatoon	5
Lost position			
Oshawa	-19	Ottawa-Hull	-17
Toronto	-18	Victoria	-15
Hamilton	-8	Québec CMA	-7
St. Catharines-Niagara	-8	Non-CMA Ontario	-7
Non-CMA Ontario	-7	Halifax	-6

Source: Labour Force Survey

* Five regions with the largest rank changes, negative or positive, were selected within each comparison period. However, where regions were tied, both cases are included in the list.

Note

1 The trough of the recession, as measured by monthly unemployment rates, occurred in April 1992. Annual average data such as those used here do not show the full detail of the trends over time.

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Summary

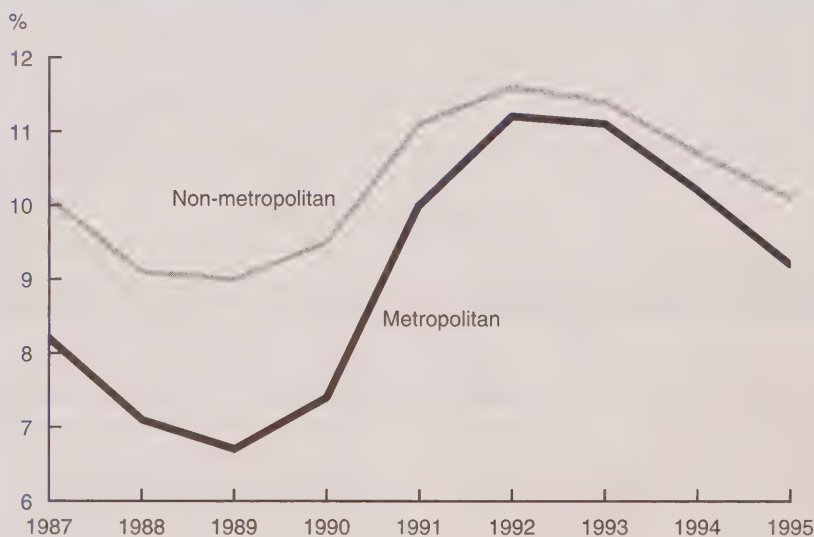
The national unemployment rate is a mosaic of many pieces. Some areas of the country, for example, demonstrate stability, but other regions are much more variable. Metropolitan areas in general tend to show wider fluctuations, though their unemployment rates are usually lower.

These differences have important consequences for the country. As the economy improves, certain regions tend to develop shortages of particular kinds of workers. At the same time, unemployment remains stubbornly high in other areas.

Although unemployment rates have fallen in most regions, these declines have been mostly moderate, so unemployment dispersion has risen only slightly. The lowest unemployment rates remain well above those of 1988 and 1989, and the location of the tightest labour markets has shifted from southern Ontario to the West. □

Chart

Unemployment rates in metropolitan areas are lower but more variable.



Source: Labour Force Survey

Appendix Table 1
Employment trends by region

	1989	1992	1995	Change	
				1989 to 1992	1992 to 1995
			'000		
Canada	13,086	12,842	13,506	-244	664
All CMAs combined	8,543	8,336	8,754	-207	418
All non-CMA regions combined	4,543	4,506	4,752	-37	246
Atlantic	941	921	954	-19	32
St. John's	74	74	82	-	8
Non-CMA Newfoundland	132	119	115	-12	-4
Prince Edward Island	55	54	59	-	5
Halifax	160	156	166	-4	10
Non-CMA Nova Scotia	224	215	218	-9	3
Saint John	56	59	59	3	-
Non-CMA New Brunswick	240	243	254	3	12
Quebec	3,157	3,067	3,204	-90	137
Chicoutimi-Jonquière	64	62	62	-2	-
Québec	304	310	316	6	6
Trois-Rivières	62	58	63	-4	5
Sherbrooke	68	61	66	-6	4
Montréal	1,557	1,493	1,544	-64	51
Non-CMA Quebec	987	960	1,025	-26	64
Ottawa-Hull	493	498	510	5	12
Ontario	5,241	5,001	5,231	-240	231
Sudbury	71	69	78	-1	9
Oshawa	126	119	128	-8	9
Toronto	2,165	2,021	2,123	-144	102
Hamilton	323	295	312	-28	16
St-Catharines-Niagara	152	153	159	1	6
London	198	198	208	-	10
Windsor	132	119	127	-13	8
Kitchener-Waterloo	197	194	205	-3	10
Thunder Bay	62	59	64	-3	5
Non-CMA Ontario	1,437	1,397	1,448	-40	51
Prairies	2,224	2,233	2,355	9	121
Winnipeg	336	321	344	-14	23
Non-CMA Manitoba	177	177	178	-	1
Regina	96	97	99	1	2
Saskatoon	102	100	106	-2	6
Non-CMA Saskatchewan	259	253	255	-6	2
Calgary	391	394	427	3	33
Edmonton	417	429	453	12	25
Non-CMA Alberta	446	462	492	16	31
British Columbia	1,524	1,619	1,762	96	142
Vancouver	806	861	910	55	50
Victoria	131	134	144	3	10
Non-CMA British Columbia	587	625	707	38	83

Source: Labour Force Survey

Appendix Table 2
Metropolitan and non-metropolitan unemployment rates

	1987	1988	1989	1990	1991	1992	1993	1994	1995
	%								
Canada	8.9	7.8	7.5	8.1	10.4	11.3	11.2	10.4	9.5
CMA	8.2	7.1	6.7	7.4	9.9	11.2	11.1	10.2	9.2
Non-CMA	10.1	9.1	9.0	9.5	11.1	11.6	11.4	10.7	10.1
Atlantic	13.9	12.3	12.2	12.7	14.0	14.9	15.4	14.8	13.4
CMA	10.7	9.4	8.7	9.3	10.7	11.8	11.8	11.2	10.1
Non-CMA	15.3	13.6	13.8	14.2	15.4	16.3	17.0	16.5	14.9
Newfoundland	18.0	16.4	15.7	17.0	18.3	20.2	20.1	20.4	18.3
CMA	12.5	11.2	10.8	11.9	13.3	15.6	14.1	14.1	12.6
Non-CMA	20.8	19.2	18.2	19.8	21.2	22.8	23.7	24.3	21.9
Prince Edward Island	13.1	12.9	14.0	14.9	16.9	17.9	18.1	17.1	14.7
Nova Scotia	12.4	10.2	9.8	10.5	12.0	13.2	14.7	13.3	12.1
CMA	9.0	7.9	6.9	7.9	9.1	10.0	11.2	9.4	8.9
Non-CMA	14.6	11.8	11.9	12.4	14.1	15.3	17.1	16.1	14.4
New Brunswick	13.1	12.0	12.4	12.1	12.8	12.8	12.6	12.4	11.5
CMA	13.0	11.2	10.7	9.6	11.8	11.4	10.5	12.2	10.3
Non-CMA	13.2	12.2	12.8	12.6	13.0	13.2	13.1	12.5	11.8
Quebec	10.3	9.4	9.3	10.2	12.0	12.8	13.2	12.2	11.3
CMA	9.9	9.1	8.8	9.6	11.7	12.8	13.0	12.1	11.1
Non-CMA	11.2	10.2	10.4	11.3	12.6	12.7	13.3	12.3	11.5
Ontario	6.1	5.0	5.1	6.3	9.6	10.9	10.6	9.6	8.7
CMA	5.7	4.6	4.7	5.8	9.5	10.9	10.6	9.5	8.5
Non-CMA	7.1	6.2	6.0	7.5	10.0	10.8	10.5	9.9	9.4
Prairies	8.7	7.9	7.4	7.1	8.2	9.3	9.3	8.4	7.6
CMA	9.3	8.4	7.9	7.6	9.2	10.5	10.6	9.8	8.3
Non-CMA	7.7	7.2	6.6	6.3	6.7	7.5	7.3	6.2	6.3
Manitoba	7.4	7.9	7.6	7.3	8.9	9.7	9.3	9.2	7.5
CMA	7.9	8.3	7.9	7.9	10.1	11.3	10.9	10.9	8.2
Non-CMA	6.5	7.1	7.0	6.2	6.7	6.7	6.4	6.0	6.0
Saskatchewan	7.4	7.5	7.5	7.0	7.3	8.2	8.0	7.0	6.9
CMA	8.3	8.2	8.6	7.9	8.6	9.5	9.1	8.2	7.9
Non-CMA	6.6	6.9	6.6	6.3	6.2	7.2	7.2	6.1	6.1
Alberta	9.7	8.1	7.3	7.0	8.3	9.5	9.7	8.6	7.8
CMA	10.2	8.5	7.7	7.4	9.1	10.4	10.8	9.8	8.5
Non-CMA	8.9	7.4	6.5	6.4	6.9	7.9	7.7	6.4	6.5
British Columbia	12.0	10.3	9.1	8.4	10.0	10.5	9.7	9.4	9.0
CMA	11.4	9.5	7.6	7.2	8.3	9.1	9.2	8.8	8.4
Non-CMA	12.9	11.5	11.4	10.1	12.6	12.6	10.5	10.3	9.7

Source: Labour Force Survey

Women entrepreneurs

Gary L. Cohen

Self-employment, or entrepreneurship, has been booming in Canada. More than one-fourth of all employment growth from 1976 to 1994 has been in the form of self-employment.¹ Indeed, entrepreneurship has frequently been referred to as the engine of employment growth in the Canadian economy; much of that growth has been attributed to the creation and evolution of small businesses.²

In part, the expansion of self-employment reflects the ongoing shift to a service economy. But it can also be linked to the business opportunities that have become available as a result of the downsizing and restructuring of large corporate enterprises, coupled with the adoption of policies promoting contracting out and privatization by government.

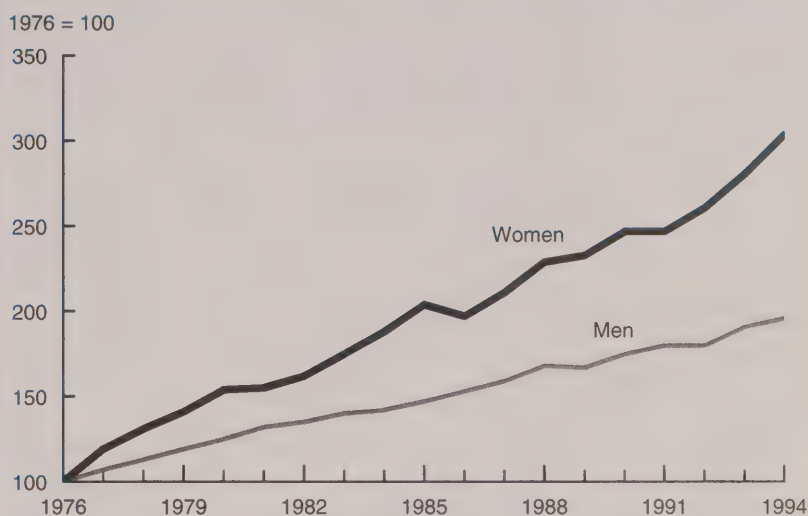
In 1976, there were 810,000 workers in the non-agricultural industries³ who were self-employed in their main job,⁴ representing 9% of the 9.3 million workers in these industries. By 1994, the number of entrepreneurs in Canada had more than doubled to 1.8 million and they represented fully 14% of 12.9 million workers.

The representation of women among the self-employed has jumped considerably in the last 20 years. Women accounted for one in three entrepreneurs in 1994, up from just one in four in 1976. And the incidence of self-employment (the self-employed as a proportion of the total employed) rose from 6% to 10% for women, compared with a rise from 11% to 17% for men.

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Chart A

Self-employed women have tripled their numbers, while men have doubled theirs.



Source: Labour Force Survey

This paper describes the growth in entrepreneurship among women, and compares the characteristics of self-employed women with those of their male counterparts (see *Data sources and definitions*).

Two decades of growth

Over the last two decades total employment growth has been much more pronounced for women than for men. Total female employment rose from 3.5 million in 1976 to 5.9 million in 1994, while male employment increased from 5.8 to 7.0 million. In other words, women have accounted for fully two-thirds of all employment gains.⁶

Self-employment has been increasing steadily for both women and men (Chart A). The number of self-employed women tripled from 197,000 in 1976 to 598,000 in

1994, while the number of self-employed men almost doubled from 614,000 to 1.2 million. Thus, women accounted for about 40% of the rise in self-employment during this period.

Two-thirds of women entrepreneurs work full time.⁷ This proportion has hardly changed since 1976 because both full-time and part-time self-employment have doubled among women. By way of contrast, the proportion of full-time workers among men entrepreneurs fell from 95% in 1976 to 90% in 1994 as the rise in part-time work (311%) considerably exceeded that of full-time work (85%).

Among women, the rise in the number of employers (250%) has been far stronger than the rise in own-account workers (189%); among men, own-account workers

Data sources and definitions

Labour Force Survey (LFS)

The LFS is a monthly household survey. It is perhaps best known as the source of Canada's official unemployment rate, but it also collects a multitude of other data about various aspects of the Canadian labour market. LFS data have been used here to examine self-employment growth and the demographic characteristics of this group.

The vast majority of employed Canadians (84%) are **paid workers** (employees) who receive a wage or salary from an employer (for example, a firm, farm, or government department). A small number (less than 1%) are **unpaid family workers** who work without pay in a business owned and operated by another family member living in the same household. The remaining workers are self-employed.

The **self-employed** are those persons who own and operate a business, farm or professional practice. They also include within their ranks independent salespersons and those who work independently but do not own a business (for example, babysitters and newspaper carriers). Although the LFS does not explicitly define the term business, it assumes that business is synonymous with having one or more of the following: a location used exclusively for business, a significant capital investment, or paid help.

Currently, some 16% of all employed Canadians (14% in the non-agricultural industries) are self-employed. The self-employed are categorized as either **employers** (those who usually employ one or more paid workers) or **own-account workers** (those who do not usually have paid help). Their businesses can be either incorporated or unincorporated. For further information about the LFS, see Statistics Canada (1992).⁵

Survey of Consumer Finances (SCF)

The earnings data used in this report are from the SCF, an annual supplement to the April LFS. **Earnings** consist of wages and salaries as well as net income from self-employment. The SCF collects data for the previous calendar year; thus the April 1994 SCF collected earnings data for 1993.

The SCF data used in this report relate only to those who, as of the relevant April survey date, had had the same job/business since January of the preceding year (a 16-month period). This technique facilitates comparisons between various groups of workers. As a result, workers who changed jobs, who did not work the entire year, or who started a new business during the year have been excluded from the data.

prising: younger workers have not generally acquired the experience, resources and skills necessary to move into self-employment. Also, the particularly high rate of self-employment among both women (34%) and men (55%) aged 65 and over undoubtedly reflects the retirement, willing or otherwise, of most employees by this age (Table 1).

The rise in self-employment by age is noticeably sharper for men than for women. For example, in 1994 the rates of self-employment for 25 to 34 year-olds were 8% for women and 12% for men, while the rates for 45 to 54 year-olds were

12% and 23%, respectively. Thus, while on average both self-employed women and men are older than their paid worker counterparts, the age differential is greater for men than for women (Chart B).

Marital and family status

Self-employed workers are much more likely than paid workers to be married. In 1994, 72% of women entrepreneurs were married compared with 64% of paid workers. The comparable figures for men were 79% for the self-employed and 64% for paid workers. At least part of these differences in marital rates reflects the age variations among these groups. The self-employed are older on average than paid workers, and older workers are more likely to be married. And, as noted previously, this age gap is more pronounced for men than for women.

Other factors may also contribute to higher marriage rates for entrepreneurs. It seems likely that the safety net provided by an employed spouse might facilitate or encourage risk taking for some entrepreneurs. Furthermore, marriage partners are often business partners. The family-owned corner grocery store is but one example of such an arrangement, and a considerable number of self-employed women are married to other entrepreneurs (Gardner, 1994).

The incidence of self-employment was only somewhat higher for married (11%) than for non-married women (8%).⁸ In sharp contrast, the incidence for married men (20%) was almost double that for non-married men (11%). Among women, regardless of their marital status, children in the home made little difference to the incidence of self-employment.

Education

The educational characteristics of self-employed women are fairly

have increased more rapidly (127% compared with 73%). By 1994, 28% of the female self-employed were employers, up from 25% in 1976; in contrast, the proportion of employers among men fell during this period, from 57% to 50%. Or, expressed from a different perspective, women made up 22% of all employers in 1994, up from 12% in 1976.

Who are these entrepreneurs?

Age

The incidence of self-employment rises steadily by age for both women and men. This is hardly sur-

Table 1
Self-employment by age and sex, 1994 *

	Total employed	Self- employed	Rate of self- employment
	'000		%
Both sexes	12,867	1,800	14
15-24	2,008	129	6
25-34	3,574	367	10
35-44	3,598	547	15
45-54	2,506	453	18
55-64	1,018	225	22
65 and over	163	78	48
Women	5,862	598	10
15-24	988	66	7
25-34	1,642	136	8
35-44	1,659	187	11
45-54	1,115	135	12
55-64	405	56	14
65 and over	53	18	34
Men	7,005	1,202	17
15-24	1,020	63	6
25-34	1,931	231	12
35-44	1,939	360	19
45-54	1,391	319	23
55-64	613	169	28
65 and over	110	60	55

Source: Labour Force Survey

* Non-agricultural industries only.

men (24%) than among male paid workers (18%). On average, women seem less likely than men to have become entrepreneurs in professional fields where self-employment requires the successful completion of a higher education.

Where they work ...

Employed women tend to be concentrated in just a few service industries (Table 2); this pattern is particularly true for self-employed women, although less so today than in the past (Chart C).

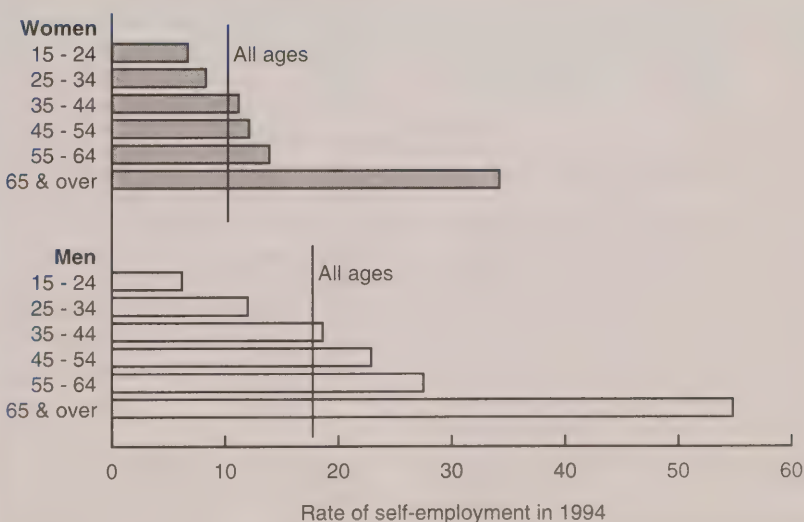
In 1976, more than one-half of self-employed women were employed in other services,⁹ and a further 22% worked in retail trade. Because of slower-than-average employment gains in these two industries, by 1994 their shares had declined to 35% and 17%, respectively. Particularly strong growth in business services and in health and social services vaulted these industries to overall self-employment shares of 13% and 11%.

similar to those of female paid workers. For example, in 1994, 19% of self-employed women had a university degree compared with 18% of paid workers. However, the incidence of self-employment was considerably higher among women who did not complete high school (16%) than among those who had higher levels of educational attainment (10%). This undoubtedly reflects the fact that self-employment encompasses a broad spectrum of activities, including many that have only a limited relationship to formal education.

The educational profile of male entrepreneurs generally matches that of their female counterparts; for example, in 1994 men's incidence of self-employment was highest among those without a high school diploma (23%). However, in contrast to the situation for women, university degrees were more prevalent among self-employed

Chart B

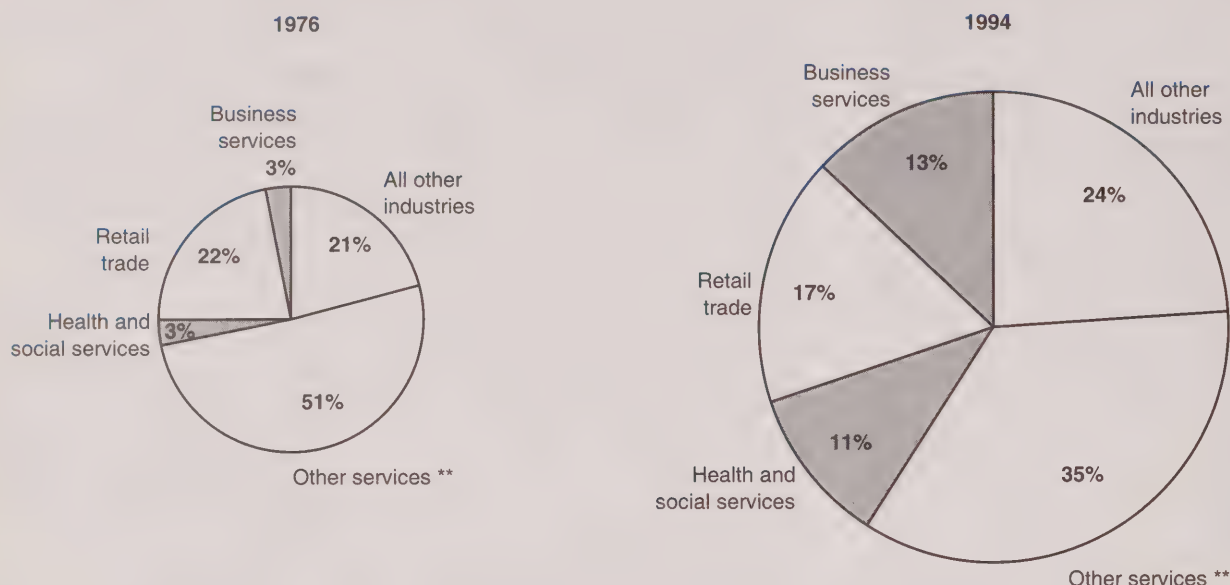
The rate of self-employment by age generally differs less for women.



Source: Labour Force Survey

Chart C

Business services and health and social services have become much larger fields for women entrepreneurs. *



Source: Labour Force Survey

* In 1976, there were 197,000 women entrepreneurs; in 1994, there were 598,000.

** Mainly amusement and recreational services, and personal and household services.

Thus, these four industries accounted for three out of four self-employed women but just 45% of female paid workers. At the same time, only 7% of self-employed women worked in the goods sector¹⁰ compared with 12% of female paid workers.

... and what they do

Given this industrial distribution, it comes as no surprise that 37% of self-employed women worked in service occupations in 1994 (down from 55% in 1976).¹¹ A further 21% were in sales occupations. In contrast, self-employed men in 1994 were concentrated in sales occupations (21%), construction trades (17%) and managerial and administrative occupations (13%).

Hours on the job

Women entrepreneurs are much more likely than their paid worker counterparts to work either few or many hours in their main job. In 1994, 37% of women entrepreneurs usually worked less than 30 hours per week; this compares with 27% of female paid workers (and just 12% of male entrepreneurs).¹² Short work weeks were particularly evident among female own-account workers; in 1994, of the 72% of women entrepreneurs who were own-account workers, fully 45% usually worked less than 30 hours per week.

On the other hand, the incidence of long hours (usually working 50 or more hours per week) was much higher for women entrepreneurs

(21%) than for female paid workers (4%), although far below the level recorded by men entrepreneurs (44%). Such long hours reflect but one aspect of the demands that self-employment can impose on the owner/operator.

What about money?

Average annual earnings of self-employed women were \$18,400 in 1993 (See *Data sources and definitions*). This compares with \$25,900 for female paid workers and \$33,400 for self-employed men. Female employers earned an average of \$27,000 that year, while own-account workers averaged \$13,900.

Lower earnings for self-employed women reflect a number of

Table 2
Self-employment by industry and sex, 1994 *

	Women			Men		
	Total employed	Self-employed	Rate of self-employment	Total employed	Self-employed	Rate of self-employment
	'000		%	'000		%
Total	5,862	598	10	7,005	1,202	17
Primary **	38	4	11	239	44	18
Manufacturing	541	23	4	1,409	74	5
Construction	80	16	20	670	239	36
Transportation and storage	96	5	5	428	70	16
Communications and other utilities	161	--	--	294	12	4
Wholesale trade	170	15	9	439	86	20
Retail trade	858	102	12	846	194	23
Finance and insurance	359	--	--	166	12	7
Real estate operators and insurance agents	125	25	20	138	52	38
Business services	353	78	22	470	172	37
Government services	391	--	--	487	--	--
Education services	589	16	3	370	8	2
Health and social services	1,049	64	6	267	59	22
Accommodation, food and beverage services	470	32	7	367	50	14
Other services †	583	213	37	414	130	31

Source: Labour Force Survey

* Non-agricultural industries only.

** Includes fishing, forestry and mining.

† Mainly amusement and recreational services plus personal and household services.

factors, many of which are interrelated. Perhaps most important is the fact that part-time work is much more prevalent among women entrepreneurs than among either female paid workers or men entrepreneurs. Compounding the issue of the short work week, women entrepreneurs are also concentrated in industries such as other services and retail trade, where earnings tend to be lower than average (Grenon, 1996). As well, the proportion of employers (who consistently earn far more than own-account workers) is considerably lower for women than for men. Also, the proportion of self-employed women with a university degree is lower than that of men.¹³

Summary

Self-employment has been rising rapidly in recent years, partly

because of a restructuring of both the private and public sectors. Although men still dominate the self-employment sphere of the labour market, women are playing an ever-increasing role, particularly in industries such as retail trade, business services and health and social services. The fact that women entrepreneurs are frequently married to other entrepreneurs suggests that a part of the large increase in self-employment reflects changes in the way women view their role within a family enterprise. □

Notes

1 More specifically, 17% of the growth in employment for women and 49% for men has been self-employment.

2 While small business is not exactly synonymous with self-employment, it is closely

linked. See "Small business driving Canada's economy," *The Globe and Mail* (Advertising supplement, March 17, 1995). For a scientific assessment on the same theme, see Picot, Baldwin and Dupuy (1994), and Baldwin and Picot (1994).

3 Agriculture has been excluded from the main study because the factors affecting employment growth and worker status in this sector are quite different from those in other sectors of the economy (see *Down on the farm*, overleaf).

4 For persons holding more than one job, the LFS defines "main job" as the one at which a person is currently working the greatest number of usual hours. In 1993, there were some 160,000 moonlighters who were paid workers in their main job and self-employed in their second job (Cohen, 1994).

5 Similar but more detailed data are available from the Census of Population, but these are not as timely. (The most recent data are for 1991.)

6 From 1976 to 1994, the number of paid workers increased by 61% for women, compared with a rise of just 12% for men. As a result of this differential in growth, women accounted for 47% of paid workers in 1994, compared with 39% in 1976.

7 In this article, full-time workers (with some minor exceptions) are those usually employed 30 hours or more per week at all jobs combined. Between 1976 and 1994, the number of female full-time paid workers rose 50%, compared with a rise of 7% for male full-time paid workers. The number of part-time paid workers more than doubled for both women and men.

8 For this study, "married" also includes persons in common-law arrangements, while "non-married" refers to single (never married), divorced and widowed persons.

9 "Other services" consists mainly of amusement and recreational services plus personal and household services.

10 For this report, the (non-agricultural) goods sector includes fishing, forestry, mining, manufacturing and construction.

11 The most common service occupations for the self-employed, according to the 1991 Census, were barbers/hairdressers (34,000) and child-care workers (22,000) (Gardner, 1994).

12 The number of hours usually worked weekly may be quite different from the actual hours worked during a particular week.

13 In general, earnings are directly related to the level of educational attainment.

Down on the farm

Employment patterns in agriculture have changed dramatically in the last 20 years. In 1976, there were 481,000 agricultural workers in Canada, of whom one-fourth (117,000) were women. By 1994, total agricultural employment had fallen 12% to 425,000, but the number of women employed in this industry had risen 19% (to 140,000) and they represented one-third of "farm workers."

For women in agriculture, the shifts from unpaid family work to self-employment have been even more pronounced and significant. In 1976, only 10% of female farm workers were classified as self-employed, while 32% were paid workers and 58% were unpaid family workers. In 1994, 43% of female farm workers were self-employed, while 41% were paid workers and just 16% were unpaid family workers (Chart). In absolute terms, the number of self-employed women in the agriculture industry soared from 12,000 to 60,000, the number of female paid workers rose from 38,000 to 57,000,

and the number of unpaid female family workers dropped from 67,000 to 23,000.

To some extent these dramatic shifts reflect the fact that farm women, like women in general, have become much more aware of their rights, particularly those related to the ownership of family property. This awareness has been validated by the courts, which have stated that women have the right to an appropriate share of the equity of their family farm. In addition, tax changes have encouraged women to assume paid employment status (Duchesne, 1989).

Male employment patterns in agriculture were much more subdued during this period. Employment fell in all three worker categories, although the distribution was similar to 1976 patterns: in 1994, 69% of the 285,000 male farm workers were self-employed, 28% were paid workers and 3% were unpaid family workers.

The rate of self-employment among women in agriculture has quadrupled since 1976.



Source: Labour Force Survey

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Are service jobs low-paying?

Lee Grenon

Service sector jobs are generally considered by the public to pay low wages. This perception arises partly from some commentators' indiscriminate labelling of low-wage industries as "services"; it gains support from the high visibility of many low-wage service jobs, in food services and retail trade for instance, suggesting that all are low-paying, with limited opportunities for advancement. This belief is not entirely misplaced. In 1994, the 20 lowest-paying industries in Canada, based on average weekly earnings, were in the service sector; at the same time, however, 6 of the 20 highest-paying industries were also in services.

The service-producing sector is several times larger than the goods-producing sector, employing over three-quarters of the Canadian workforce. With size comes diversity: industries in the service sector range from restaurants, stores and gas stations to health care, government and financial institutions. Wages are equally wide ranging, with employees polarized in the high-paying and low-paying industries. This article compares average weekly earnings, excluding overtime, of employees¹ across more than 100 different service industries. It also assesses the disparity in the earnings of service and goods sector workers.

Interpreting weekly earnings

Differences in weekly earnings between industries arise from several factors, but one of the most important is volume of work (hours worked per week, and weeks worked per year). For example, employers in an industry heavily

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Data source, limitations and definitions

This study uses annual average data compiled from the monthly Survey of Employment, Payrolls and Hours (SEPH). SEPH is the largest survey of businesses in Canada, and the only source of current weekly earnings at a detailed industry level.² The survey collects information on the weekly payrolls, earnings, hours and counts of paid employees. (The reference period is usually the last seven days of the month.) The data are compiled by industry for Canada, the provinces and territories.

All employees in Canada, except those in agriculture, fishing and trapping, private household services, religious organizations and military services, are covered in this survey. Estimates are derived from a census of large employers (at least 300 employees) and a sample survey of employers with between 100 and 299 employees. A sample of administrative records is used for firms with fewer than 100 employees.

SEPH coverage does not include the self-employed with unincorporated businesses, many of whom are professionals with high earnings in the service sector, for example, physicians, dentists, accountants, consultants and lawyers. This omission, while not invalidating the results of this study, most likely skews service sector earnings towards the low end of the pay scale. (Similarly, the exclusion of the low-paying agricultural and fishing industries probably skews earnings in the goods sector towards the high end.)

Industry: SEPH categorizes business establishments by industry using the 1980 Standard Industrial Classification (SIC). The SIC classifies produc-

ers of goods and services into industries at increasingly refined levels of detail, from a one-digit division level through to a four-digit individual industry (Statistics Canada, 1980); for example, a yogurt manufacturer can be classified to the manufacturing industries (one-digit division), as well as the disaggregated food industries (two-digit major group), or the more detailed dairy products industries (three-digit minor group), or, most specifically, the fluid milk industry (four-digit individual industry). This article uses the SIC at the 3-digit level to divide the service sector into 107 minor industry groups, and the goods-producing sector into 103 minor industry groups.

Employee: a person receiving pay for services rendered (including paid absences), and for whom the employer is required to complete a Revenue Canada T-4 Supplementary Form. Included are full- and part-time employees, as well as working owners, directors, partners and other officers of incorporated businesses.

Average weekly earnings: gross taxable payrolls (in SEPH's reference week) divided by the number of employees on these payrolls. Annual estimates are calculated by averaging the monthly estimates for the calendar year. Excluded are taxable allowances and benefits, and certain types of non-wage compensation, as well as employer contributions to Unemployment Insurance, the Canada and Quebec Pension Plan, provincial medical plans, Workers' Compensation and other welfare plans. For analytical purposes, the average weekly earnings in this article also exclude overtime pay.

reliant on part-time workers (those usually employed less than 30 hours per week) will likely pay each worker less, on average, than employers in an industry character-

ized by a full-time workforce; in some industries, higher weekly earnings may be offered to compensate for not providing a full year of employment. For this rea-

Table 1
Average weekly payrolls, employment and earnings (excluding overtime), by industry sector, 1994

	Average weekly payrolls		Employment		Average weekly earnings
	\$ millions	%	'000	%	\$
All industries *	5,764	100	10,447	100	551.69
Service-producing sector	4,141	72	7,996	77	517.97
Goods-producing sector	1,589	28	2,392	23	664.38

Source: Survey of Employment, Payrolls and Hours

* Includes employees who have not been classified by industry.

son, average weekly earnings are not necessarily a good predictor of annual employment income in an industry. Nevertheless, they serve the purpose of this study, which is to show how much money an employee can expect to earn in a typical work week in a specific industry, "typical" reflecting both rate of pay and hours of work.

The reported level of average weekly earnings also depends on the coverage provided by the data source. Tips and gratuities, an important component of earnings for many service employees, especially those in the hospitality industries, are excluded from this study. This exclusion understates the earnings reported in many service industries (see *Data source, limitations and definitions*). Overtime earnings, which in 1994 increased substantially in certain industries (especially manufacturing), are also excluded, as are supplementary benefits received by employees, such as medical, dental and pension plans, and other non-wage compensation.

Average earnings in service industries vary considerably

In 1994, three out of four Canadian employees worked in the service sector, which disbursed a weekly payroll of more than \$4 billion (Table 1). This amount was paid out to nearly 8 million employees, who

earned an average \$520 a week.³ However, the average weekly earnings paid to employees in "other financial intermediaries," the highest-paying service industry, were six times greater than those in food services, the lowest.

To study the range of earnings in the service sector, industries were grouped into quintiles (see *Quintiles and indexes*). In the highest-paying quintile of service industries (Q1), which employed 25% of the 8 million service workers (Table 2), average weekly earnings in 1994 ranged from \$670 to \$1,240 (Appendix). Many of the industries were in the transportation, public or financial services; a number were also highly unionized. The lowest-paying industries (Q5), accounting for the greatest proportion of service workers (27%), were predominantly retail trade, food and accommodation, and personal service industries; average weekly earnings in this quintile ranged from \$210 to \$360. The medium-paying industries (Q3), which consisted mainly of wholesalers, health and social services, and financial services, paid an average of \$490 to \$560 per week and employed only 9% of service sector workers. The large disparities in earnings found in the service sector successfully challenge the prevailing view that all service jobs are low-paying (Chart).

Quintiles and indexes

This article compares a wide range of average weekly earnings across 107 service industries; it also quantifies the disparity in earnings between service and goods sector workers. Two measures are used to simplify these comparisons: quintiles, to study the range of earnings; and indexes, to compare earnings in individual service industries with an earnings benchmark based on average weekly earnings in the goods sector.

The earnings quintiles divide an unwieldy number of service industries into separate groups in order to compare the range of earnings across industries more easily. Industries are ranked from highest to lowest according to average weekly earnings, then divided into five equal segments.

Earnings indexes are used to compare the average weekly earnings in specific service industries with those in the goods sector overall (\$664.38), using the latter as a base (where \$664.38 = 100). All other earnings are expressed as a ratio of this base. For example, employees in brokerages, exchanges and other financial intermediaries earn on average \$1,240.22 a week, which is divided by \$664.38 to yield an earnings index of 187. This result means the average weekly earnings in this industry are 87% greater than the average for the goods sector.

Only one in four service workers earn more

Do goods sector jobs really pay much more than service sector jobs? To evaluate this assumption, average weekly earnings in the two sectors were compared using a benchmark (earnings index) based on the overall average weekly earnings reported in the goods sector for 1994 (see *Earnings in the goods-producing industries*).

Average weekly earnings in the service sector as a whole were \$520 in 1994, about 22% less than the goods-producing average. But

Earnings in the goods-producing industries

Just under one-quarter of Canada's employees (2.4 million people) worked in the goods-producing sector in 1994. The goods sector consists of 103 industries (3-digit SIC), including the natural resource industries (except agriculture and fishing, which are not covered by SEPH), manufacturing, construction and utilities. The range of weekly earnings was relatively narrow, the average in the highest-paying industry (\$1,102.54 in crude petroleum and natural gas) being only three times larger than that in the lowest (\$368.48 in children's and other clothing and apparel manufacturing⁴). In the service sector, the average in the highest-paying industry (\$1,240.22 in other financial intermediaries) was six times that in the lowest (\$206.74 in food services).⁵

About 21% of all goods sector workers were employed in industries found in the highest-paying quintile, where the earnings indexes were between 115 and 166. Another 16% of workers were employed in industries with indexes between 100 and 115. In contrast, only 25% of service employees worked in industries with earnings indexes over 100.

Only 1% of goods workers were employed in children's and other clothing and apparel manufacturing (the lowest-paying). Nevertheless, this tiny minority, with an earnings index of 55, was earning better money on average than 27% of service workers.

overall averages can be misleading when the range of earnings is as broad as it is in the service sector. Calculating earnings indexes for each of the 100-plus service industries in this study shows that one-quarter of service employees (2 million) were in industries with average weekly earnings exceeding the goods sector benchmark.

In the economy as a whole, average weekly earnings were highest – \$1,240 per week, with an earnings index of 187 – for the

Table 2
Distribution of employment and average weekly earnings within industry sectors, by earnings quintiles, 1994

	Service sector			Goods sector		
	Employment	Average weekly earnings		Employment	Average weekly earnings	
	'000	%	\$	'000	%	\$
All quintiles	7,996	100	517.97	2,392	100	664.38
Quintile 1	2,019	25	752.28	498	21	895.09
Quintile 2	1,843	23	595.07	377	16	715.30
Quintile 3	719	9	530.30	389	16	651.58
Quintile 4	1,272	16	433.84	636	27	601.78
Quintile 5	2,142	27	276.54	493	21	483.42

Source: Survey of Employment, Payrolls and Hours

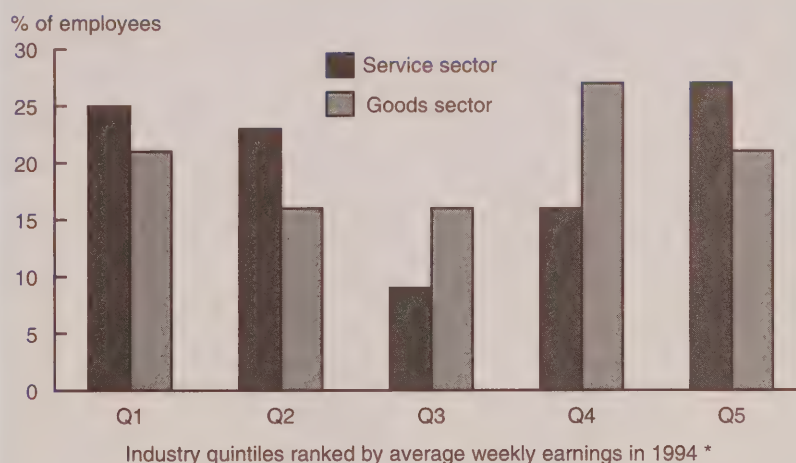
30,000 employees in "other financial intermediaries," which includes brokerage houses and stock exchanges. However, for three in four employees in the most highly paid service industries (Q1), the earnings index did not rise above 120. The 1.3 million employees in government services and elementary and secondary education,

whose 1994 earnings averaged between \$700 and \$810 weekly, had modest earnings indexes of 105 to 122; this range was typical of those service workers who were relatively well paid.

The remaining industries in the top quintile employed 730,000 people in 1994. All had an earnings

Chart

Employees in the service sector were concentrated in the highest- and lowest-paying industries.



Source: Survey of Employment, Payrolls and Hours (SEPH)

* The first quintile has the highest earnings.

index over 100. These included industries in transportation (pipelines, air, water and railway), finance and insurance, telecommunications and broadcasting, and architecture and engineering.⁶

Most service workers earn less

One-tenth of all service workers were employed in industries with average weekly earnings that were 1% to 10% below the goods sector average (index between 90 and 99). Industries in this range employed 824,000 workers, and included organizations such as postsecondary institutions, insurance and real estate offices.

Service industries with earnings indexes from 50 to 89 employed 3.4 million people, or 42% of the service workforce. Weekly earnings ranged from \$330 to \$590 in 1994. Major employers included hospitals, community health and social services, banks, truck transport, and amusement and recreation services.

Nearly 1.8 million people, accounting for 22% of all service workers, earned less than half the goods sector average. The average weekly pay in these industries ranged from \$210 to \$310, with an earnings index from 31 to 46. Over three-quarters of these workers were employed in retail trade (mainly clothing) or food services.

Workers in food services (restaurants, take-out, and catering) had the lowest-paying jobs in the economy, with average earnings of just \$210 a week (excluding tips).

Conclusion

Are service jobs low-paying? The answer is not a simple yes or no. Compared with employees in the goods-producing sector, most service workers earn low pay: three-quarters are employed in industries reporting average weekly earnings below the average for the goods sector. On the other hand, the highest-paying industry in 1994 was in the service sector. These seemingly contradictory facts reflect the very broad range of earnings reported by the service industries. In this sector, the highest average weekly earnings were six times greater than the lowest, compared with a spread half that size in the goods sector.

Based on the exercise done here, it appears that blanket generalizations about the nature of service jobs can be misleading. The complex, heterogeneous character of the service sector requires careful commentary from labour market observers and the general public. □

■ Notes

1 Includes all employees who are paid by the hour or on a piece rate basis, as well as those who earn a salary or commission.

2 Two other major sources of employment earnings by industry are the Census of Population and the Survey of Consumer Finances (SCF). The census provides detailed industry data by extensive geographic, demographic, social, economic, educational and cultural groupings; however, it is conducted only once every five years. The SCF, conducted once each year as a supplement to the monthly Labour Force Survey (LFS), provides annual estimates of employment income by industry, which can be linked with demographic and labour market data available from the LFS.

3 Dollar amounts in the text are rounded to the nearest \$10.

4 "Other clothing and apparel" includes sweaters, occupational clothing, gloves, hosiery, fur goods and foundation garments.

5 Had data covering the low-paying agriculture and fishing industries been available, the range of weekly earnings in the goods sector would likely have been wider.

6 Many of these are Crown corporations (government business enterprises) or regulated private corporations.

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Appendix

Average weekly earnings and number of employees in the service industries, 1994

	Average weekly earnings (excluding overtime)	Earnings index *	Employees
	\$		'000
Quintile 1			
Other financial intermediaries	1,240.22	187	29.5
Pipeline transport	971.11	146	8.1
Railway transport and related services	865.34	130	57.3
Other deposit accepting intermediaries	850.99	128	0.7
Federal government services	811.25	122	264.7
Telecommunication carriers	800.84	121	108.8
Services incidental to water transport	796.87	120	11.6
Computer and related services	785.29	118	62.5
Architectural, engineering, and other scientific and technical services	765.33	115	105.9
Telecommunication broadcasting	761.76	115	41.7
Electrical and electronic machinery, equipment, and supplies, wholesale	749.67	113	64.9
Water transport	734.11	110	15.3
Air transport	732.61	110	52.9
Construction, forestry and mining machinery, equipment and supplies, wholesale	732.59	110	14.9
Grain elevators	730.05	110	6.4
Consumer loan and business financing intermediaries	727.16	109	17.8
Insurance	721.01	109	97.2
Provincial and territorial government services	716.59	108	231.7
Elementary and secondary education services	716.24	108	587.0
Metal and metal products, wholesale	705.06	106	13.1
Local government services	699.49	105	207.2
Drug and toilet preparations and tobacco products, wholesale	673.94	101	20.0
Quintile 2			
Investment intermediaries	648.31	98	46.7
Industrial machinery, equipment and supplies, wholesale	645.82	97	30.1
Other machinery, equipment and supplies, wholesale	637.24	96	61.6
Management consulting services	634.78	96	68.7
Motor vehicles, wholesale	634.02	95	16.6
Advertising services	622.71	94	24.3
Insurance and real estate agencies	615.28	93	95.6
University education services	613.04	92	191.8
Other transportation and other services incidental to transportation	611.65	92	81.4
Postsecondary non-university education services	609.32	92	112.1
Offices of lawyers and notaries	607.19	91	60.0
Electrical and electronic household appliances and parts, wholesale	607.05	91	6.9
Other telecommunication services	606.56	91	1.8
Petroleum products, wholesale	602.57	91	26.1
Central bank, chartered banks and other banking-type intermediaries	594.54	89	193.7
Deposit accepting mortgage companies	586.31	88	0.2
Automobile dealers	578.19	87	101.2
Household furnishings, wholesale	577.45	87	10.4
Hospital services	570.14	86	553.9
Truck transport	569.03	86	131.4
Hardware and plumbing, heating and air conditioning equipment and supplies, wholesale	567.37	85	28.3
Quintile 3			
Trust companies	563.64	85	25.3
Beverages, wholesale	561.38	84	5.3
Accounting and bookkeeping services	559.53	84	52.4
Other products, wholesale	552.13	83	91.0
Motor vehicle parts and accessories, wholesale	550.06	83	40.6
Public passenger transit systems	549.32	83	76.4
Credit unions	534.78	80	51.7
Farm machinery, equipment and supplies, wholesale	529.03	80	18.8
Food, wholesale	525.98	79	68.2
Services incidental to air transport	525.69	79	8.2

Appendix – concluded**Average weekly earnings and number of employees in the service industries, 1994**

	Average weekly earnings (excluding overtime)	Earnings index *	Employees
	\$		'000
Quintile 3 - concluded			
Apparel, wholesale	523.71	79	13.0
Museum and archive services	522.37	79	9.9
Offices of social services practitioners	519.45	78	2.5
Health and social service associations and agencies	517.39	78	53.2
Medical and other health laboratories	515.49	78	24.0
Other storage and warehousing	514.32	77	9.3
Dry goods, wholesale	508.87	77	3.6
Household furniture, wholesale	502.44	76	1.9
Non-institutional health services	501.91	76	44.0
Postal and courier services	498.78	75	106.0
Automobile and truck rental and leasing services	491.15	74	14.1
Quintile 4			
Real estate operators	485.05	73	84.7
Travel services	484.03	73	30.1
Lumber and building materials, wholesale	483.86	73	61.8
Liquor, wine and beer stores	470.78	71	22.2
Recreational vehicle dealers	470.60	71	10.2
Farm products, wholesale	470.55	71	11.1
Motor vehicle repair shops	470.44	71	67.3
Funeral services	467.38	70	10.2
Other business services	455.32	69	122.1
Offices of physicians, surgeons and dentists, private practice	447.39	67	123.8
Membership organizations	443.65	67	93.7
Other educational services	441.48	66	11.9
Other institutional health and social services	421.48	63	202.0
Household furniture stores	418.10	63	25.9
Library services	417.97	63	20.6
Other services **	416.20	63	104.3
Appliance, television, radio and stereo stores	392.50	59	33.0
Non-institutional social services	386.10	58	114.7
Employment agencies and personnel suppliers	383.39	58	64.3
Household furnishings stores	379.71	57	18.0
Automotive parts and accessories stores	371.37	56	40.4
Quintile 5			
Offices of other health practitioners	364.97	55	27.2
Amusement and recreational services	362.90	55	172.1
Prescription drugs and patent medicine stores	345.72	52	89.7
Men's clothing stores	341.40	51	15.4
Laundries and cleaners	338.72	51	28.9
Other motor vehicle services	338.67	51	9.7
Photographers	334.23	50	4.9
Lodging houses and residential clubs †	308.87	46	13.1
Other retail stores and non-store retailers	304.87	46	201.9
Services to buildings and dwellings	294.05	44	70.7
Food stores	293.89	44	339.3
Hotels, motels and tourist courts	289.47	44	150.1
Gasoline service stations	287.14	43	75.5
Barber and beauty shops	286.37	43	47.3
Shoe stores	286.08	43	18.6
General merchandise stores	275.89	42	183.1
Clothing stores not elsewhere classified	257.31	39	37.3
Women's clothing stores	245.65	37	52.8
Other personal and household services	238.71	36	17.6
Fabric and yarn stores	233.35	35	8.3
Taverns, bars and night clubs	207.44	31	35.4
Food services	206.74	31	542.6

Source: Survey of Employment, Payrolls and Hours

* The average weekly earnings of a particular service industry divided by the average weekly earnings of all industries in the goods sector combined. See Quintiles and indexes.

** Comprises machinery and equipment rental and leasing services; other repair services; and other services not elsewhere classified.

† Also includes camping grounds, travel trailer parks, and recreation and vacation camps.

The many faces of unemployment

Nathalie Noreau

Usually, when people speak of unemployment, they think in terms of individuals. Rarely do they focus on the effects of unemployment – whether that of the main family breadwinner or another member – upon the family. Yet the consequences of unemployment are felt by all family members, including children.

It is possible to produce an unemployment rate based on families rather than individuals. Statistics Canada collects such information. Drawing on various sources,¹ it also publishes both monthly and occasional estimates according to family composition and status within the family, although these figures are seldom the focus of public attention or debate.

This article draws attention to family-based unemployment rates. It also identifies the extent to which the use of different data sources, namely the Labour Force Survey (LFS) and the Survey of Consumer Finances (SCF), can generate different unemployment rates for individuals and families, and evaluates the number of persons “affected” by unemployment when one or more members of the family become unemployed. To round out the picture, a brief analysis is devoted to the number and proportion of unattached individuals who have experienced a period of unemployment. Finally, the article examines how the use of two data sources affects the calculation of provincial unemployment rates (both for individuals and for families) and the ranking of the provinces.

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Different unemployment rates

The unemployment rate most familiar to the general public is based on individuals and released monthly by the LFS. This measure represents the number of unemployed persons 15 years and over during the reference period as a percentage of the labour force of the same age during the same period (see *Differences between the two reference periods*). The unemployment rate of a specific group (by age, sex, etc.) is the number of unemployed belonging to this group, expressed as a percentage of the labour force in the same group (see *Definitions*).

The definition of the unemployment rate of individuals is expressed mathematically as follows:

$$UR_{IND} = \frac{\text{Number of individuals aged 15 and over who are unemployed}}{\text{Number of individuals aged 15 and over in the labour force}}$$

A person is considered unemployed when, during the reference week, he or she

- was without employment, had actively looked for work during the past four weeks (including the reference week) and was available for work;

or

- had not actively looked for work during the past four weeks but had been laid off and was available for work (persons are classified as laid-off workers only if they expect to get their job back, a situation known as temporary lay-off);

or

- had not actively looked for work during the past four weeks but was to begin a new job within four weeks following the reference week and was available for work.

Another unemployment rate, less well known but published monthly by Statistics Canada through the Labour Force Survey, relates to families.

The family unemployment rate is defined as the average number of families affected by unemployment during the reference period, as a proportion of the average number of families in which at least one member was in the labour force during the same period (see *Calculation of the SCF-based family unemployment rate*). Mathematically, this definition is expressed as follows:

$$UR_{FAM} = \frac{\text{Number of families with at least one member unemployed}}{\text{Number of families with at least one member in the labour force}}$$

The unemployment rate of unattached individuals is defined as the average number of unattached individuals unemployed during the reference period as a proportion of the average number of unattached individuals in the labour force during the same period. Mathematically, this definition is expressed as follows:

$$UR_{U, IND} = \frac{\text{Number of unattached individuals who are unemployed}}{\text{Number of unattached individuals in the labour force}}$$

Differences between the two reference periods

Period used by the LFS

The Labour Force Survey (LFS) is conducted 12 times a year, on a monthly basis, during a specific reference period (generally the full week that includes the 15th day of the month). Respondents remain in the survey sample for six months, after which they are replaced by a similar group of representative respondents. The annual unemployment rate published by the LFS is the average of the 12 rates observed monthly during the year in question.

Period used by the SCF

The Survey of Consumer Finances (SCF) is conducted once a year, in April, as a supplement to the monthly LFS. The reference period for this survey is the previous calendar year.

The data concern respondents' sources of income as well as individuals' and families' experience of work and unemployment over the entire year. These family unemployment statistics differ considerably from those drawn from the LFS. Since the SCF takes account of labour force experience over the entire year (52 weeks), the probability that an individual or a member of a family will be affected by unemployment will inevitably be higher than it would in the case of the 12 monthly observations published by the LFS.²

In this article, the LFS and SCF data relate to the same years; for example, the data for 1993 were collected during that same year for the LFS, whereas they were collected in April 1994 for the SCF.

The definitions of unemployment and labour force that apply to the family and unattached individuals are the same as those regarding individuals, except that

the individual in question must be an integral part of a family or must live alone.

The unemployment rates for individuals, families and unattached

individuals are released every month by the LFS. For example, in 1993 an annual rate of 11.2% for individuals and 18.0% for families was observed. (Rates for individuals and families can differ even when drawn from the same source – in this case, by 6.8 percentage points.) The unemployment rate for unattached individuals was 12.9% (Table 1).

What are these rates?

How do the unemployment rates from the two sources compare for individuals, families and unattached individuals? And what is the effect of changes in economic activity on the rates from both data sources?

To determine how the business cycles of the past 15 years have affected unemployment rates, 4 key years were selected for analysis: 1980 and 1989 represent end-of-expansion periods, while 1983 and 1993 are beginning-of-expansion periods (Chart A).

Definitions

Individual: refers to a person who is either unattached or an integral part of a family. The individual is the unit of measurement for calculating the official unemployment rate.

Labour force: consists of members of the non-institutional civilian population 15 years and over who had a job (employed persons) or were unemployed during the reference week.

Family: in this article refers to economic family. It consists of a group of two or more persons inhabiting the same dwelling who are related by blood, marriage, common-law relationship or adoption. These persons may share the same dwelling with other families or with unattached individuals.

Unattached individuals: are persons who live alone or who are not related to anyone else in the dwelling.

Table 1
Unemployment rates for individuals, families and unattached individuals according to the LFS and the SCF

	LFS *†	SCF **
	%	
Individuals		
1980	7.5	18.3
1983	11.9	25.1
1989	7.5	18.1
1993	11.2	21.6
Families		
1980	11.9	28.0
1983	18.7	38.7
1989	12.6	29.5
1993	18.0	34.8
Unattached individuals		
1980	7.2	21.9
1983	12.3	27.4
1989	8.3	21.2
1993	12.9	24.4

Sources: Labour Force Survey (LFS) and Survey of Consumer Finances (SCF)

* Average of 12 reference weeks.

** Covers an entire year.

† The figures for individuals are published annually in Historical Labour Force Statistics (Catalogue no. 71-201-XPB).

Calculation of the SCF-based family unemployment rate

The SCF unemployment rate for families was obtained by first determining the number of families in which no member had experienced a period of unemployment during the year, and in which at least one member was employed. This number was then subtracted from the number of families with at least one member in the labour force. The result showed the number of families that were part of the labour force and had been affected by unem-

ployment at least once during the same year. Finally, this figure was divided by the number of families with at least one member in the labour force.

The SCF unemployment rates for individuals, families and unattached individuals use the same equations as those in the LFS. Only the reference period differs.

affected by unemployment, compared with an LFS rate of 18.0% (Table 1). The SCF rate for individuals also exceeds the LFS rate for families. These disparities are all explained by the different reference periods of the two surveys.

Unemployment rates from both sources are sensitive to fluctuations in the business cycle, since they increase when economic conditions are unfavourable and decrease in periods of prosperity (Chart A). However, the curve of the unemployment rates from the SCF has a slightly greater amplitude than the curve for the rates from the LFS. Furthermore, the turning points in the SCF series seem to be slower to appear, probably because of the different reference periods.

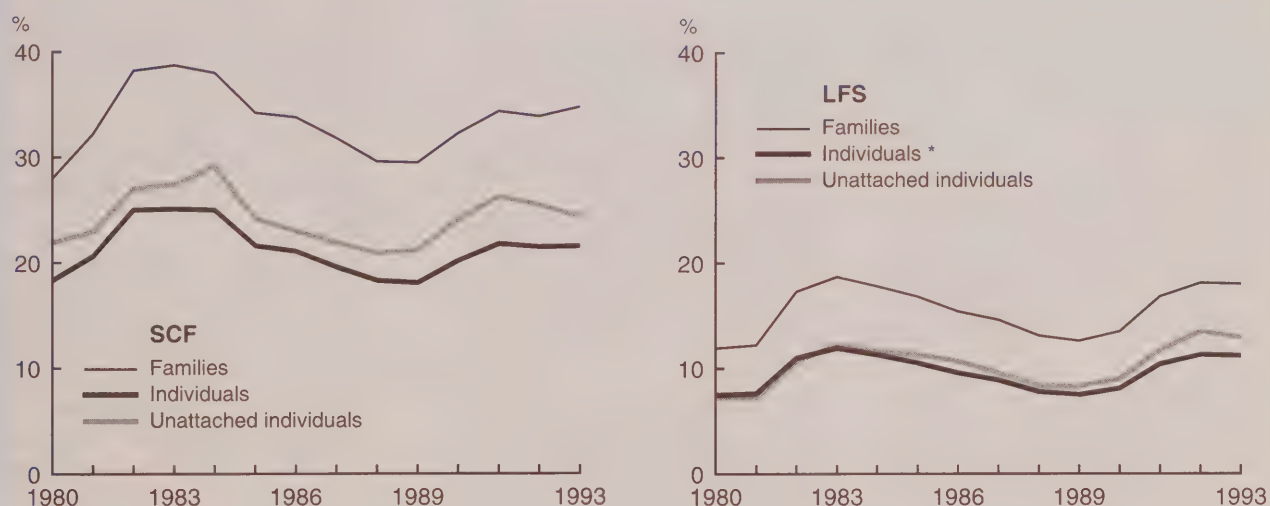
Unemployment rates for unattached individuals are higher than those for all individuals and lower than those for families. Many unattached individuals are young

Regardless of the data source used, the unemployment rates are, as expected, higher for families than for individuals, with the rate for families more than 1.5 times the rate for individuals. The reason for the disparity is simple: since a family consists of two or more persons, there is a greater probability that it will be affected by unemployment, regardless of the reference period. The greater the number of family members in the labour force, the

greater the chance of that family's being affected by unemployment.

Both for individuals and for families the unemployment rates are higher in the SCF than in the LFS. For example, the individual unemployment rate based on SCF data in 1993 was 21.6%, much higher than the rate obtained from the LFS (11.2%). Moreover, according to the SCF, more than one family in three (34.8%) was

Chart A
SCF-based unemployment rates vary more than the corresponding rates based on the LFS.



Sources: Survey of Consumer Finances (SCF) and Labour Force Survey (LFS)

* Official unemployment rate.

Table 2
Number of persons affected by unemployment

	LFS *	SCF **
	'000	
1980		
Individuals †	900	2,430
Total number of persons affected by unemployment	1,703	4,923
Persons in families	1,588	4,526
Unemployed persons	785	2,033
Other members of family	803	2,493
Unattached individuals	115	397
1983		
Individuals †	1,504	3,504
Total number of persons affected by unemployment	2,678	6,877
Persons in families	2,467	6,360
Unemployed persons	1,293	2,987
Other members of family	1,174	3,373
Unattached individuals	211	517
1989		
Individuals †	1,065	2,829
Total number of persons affected by unemployment	1,919	5,387
Persons in families	1,747	4,924
Unemployed persons	893	2,366
Other members of family	854	2,558
Unattached individuals	172	463
1993		
Individuals †	1,649	3,503
Total number of persons affected by unemployment	2,831	6,666
Persons in families	2,553	6,077
Unemployed persons	1,371	2,914
Other members of family	1,182	3,163
Unattached individuals	278	589

Sources: Labour Force Survey (LFS) and Survey of Consumer Finances (SCF)

* Average of 12 reference weeks.

** Covers an entire year.

† Sum of unemployed persons living alone or in families; the figures based on the LFS are published annually in Historical Labour Force Statistics (Catalogue no. 71-201-XPB).

(usually between 15 and 24) and subject to the same pressures affecting the status of others in this age group, whose unemployment rate is generally higher than the Canadian average. Their rate is predictably lower than that for families, since, as already noted, the probability that the latter will be affected by unemployment increases with the number of family members in the labour force. Unemployment rates for persons living alone respond to business cycles as expected, whatever data source is used.

Unemployment affects many

As stated earlier, since most Canadians belong to families, the total number of persons touched by unemployment exceeds the actual counts of those directly experiencing it.

Here again, the two reference periods yield different results, since the number of individuals affected by unemployment during an entire year is much greater (more than double) than the number observed on the basis of an average of 12 monthly values (Table 2).

For example, in 1993, 1,649,000 individuals experienced a period of unemployment according to the LFS, whereas according to the annual SCF the figure was more than twice as high, namely, 3,503,000 (because those unemployed outside the LFS reference period would still be counted).

Regardless of the data source considered, the number of family members coping with unemployment is 1.5 times greater (and even 1.8 times greater in some cases) than the number of individuals who became unemployed during a given period.³ Thus, in 1993, 3,503,000 individuals enumerated by the SCF had experienced a period of unemployment, compared with 6,077,000 members of families who had been either directly or indirectly affected by unemployment. Of that number, 2,914,000 members of families were actually unemployed, leaving roughly half the total indirectly affected by unemployment (3,163,000).

Finally, if the number of unemployed unattached individuals in 1993 is added to the number of persons belonging to families who were affected, the LFS obtains a total of 2,831,000 persons coping with the effects of unemployment in Canada; the SCF produces a figure of 6,666,000.⁴

Provincial rankings change depending on the data source used

A glance at 1993 SCF unemployment rates calculated at the provincial level reveals nearly identical provincial rankings for unemployment rates of both individuals and families. The highest rates were in the Atlantic provinces, while the lowest rates were in the Prairies (Chart B).

In addition, whether in the case of individuals or of families, the unemployment rates drawn from the SCF are approximately double

Table 3
Ranking * of provincial unemployment rates according to the LFS and the SCF, 1993

	Individuals		Families	
	LFS **	SCF †	LFS **	SCF †
Newfoundland	10	10	10	10
Prince Edward Island	9	9	9	9
Nova Scotia	8	7	8	7
New Brunswick	6	8	7	8
Quebec	7	6	6	6
Ontario	5	4	5	5
Manitoba	2	2	2	2
Saskatchewan	1	1	1	1
Alberta	3	3	4	3
British Columbia	4	5	3	4

Sources: Labour Force Survey (LFS) and Survey of Consumer Finances (SCF)

* Rank 1 corresponds to the lowest unemployment rate and rank 10 to the highest.

** Average of 12 reference weeks.

† Covers an entire year.

the rates calculated by the LFS. This observation applies both to provinces in which the rates are quite high and to those with the lowest rates. For example, according to the SCF, in 1993 Newfoundland exhibited rates of 44.1% and 63.1% for individuals and families, respectively, whereas LFS rates were 20.1% and 29.8%. In turn, Saskatchewan, whose unemployment rates are the lowest in Canada, in the same year exhibited rates of 16.3% for individuals and 26.5% for families according to the SCF, compared with corresponding LFS rates of 8.0% and 13.0%.

The unemployment measurements produced are intended not only to determine whether unemployment is rising or falling. They may also be used to establish comparisons between different groups, that is, to construct relative unemployment rates, which are often used to develop policies and programs targeting affected groups. For this reason the article compares provincial unemployment rates for 1993. By assigning a rank to each province based on its LFS unemployment rate, and by observing the change in the relative positions of

the provinces, the study assesses the effect of using the SCF (Table 3).

For some provinces, such as Newfoundland, Prince Edward Island, Manitoba and Saskatchewan, the ranking remains the same for both individual and family unemployment rates, regardless of whether the data are drawn from the LFS or the SCF. On the other hand, it appears that the ranking of some provinces changes when SCF rates are used. Thus, the ranks for Nova Scotia, Quebec and Ontario improve when the SCF unemployment rate for individuals is applied. However, the rate for families remains the same, except in the case of Nova Scotia, for which there is an improvement.

The opposite is observed in the case of New Brunswick and British Columbia; the use of the SCF adversely affects their ranking of both individual and family unemployment rates. New Brunswick in particular loses ground with respect to the rate for individuals (dropping from sixth place to eighth) and for families (slipping from seventh place to eighth).

The provincial unemployment rates used in this analysis are available in Appendix A. Unemployment rates for individuals, families and unattached individuals according to age and sex are provided in Appendix B.

Summary

When an individual becomes unemployed, his or her entire family may feel the consequences. In addition, a family is more likely to be affected by unemployment with each additional member who is a part of the labour force, hence, the higher unemployment rate for families than for individuals. Unattached individuals, being largely made up of young persons living alone and registering high rates of unemployment, have an unemployment rate that in most cases falls between that of individuals and that of families.

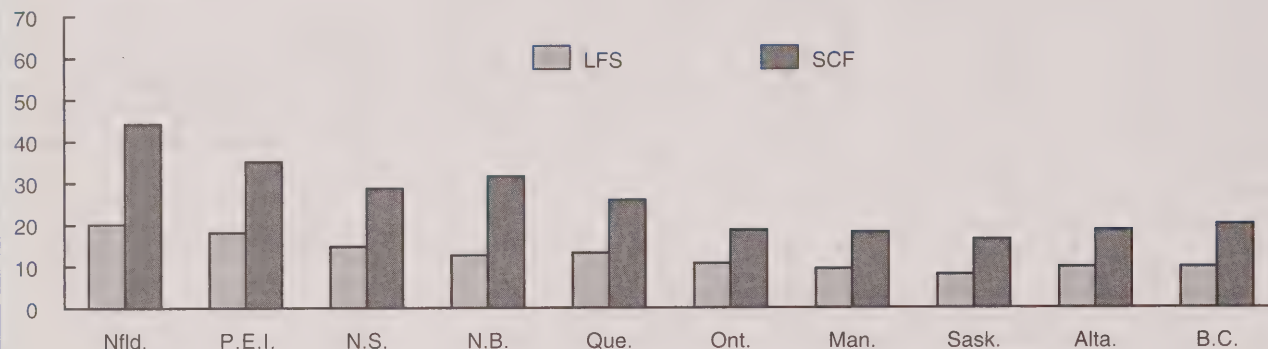
The use of different reference periods for the data can affect the calculation of the unemployment rate. Thus, the LFS, whose reference period is made up of an average of 12 weeks (one per month), produces a much lower unemployment rate than that obtained by SCF data, which cover a full year without interruption for individuals, families and unattached individuals. All these rates are sensitive to changes in the business cycle. In addition, the number of persons affected by unemployment when at least one member of a family becomes unemployed is fairly striking, especially when the SCF data are used, since this figure is more than twice the one obtained from the LFS.

One final point: unemployment rates calculated at the provincial level point up a major difference between the data from the two sources. Whichever province is observed, the rates drawn from the SCF are always about twice as high as those from the LFS and the rank-

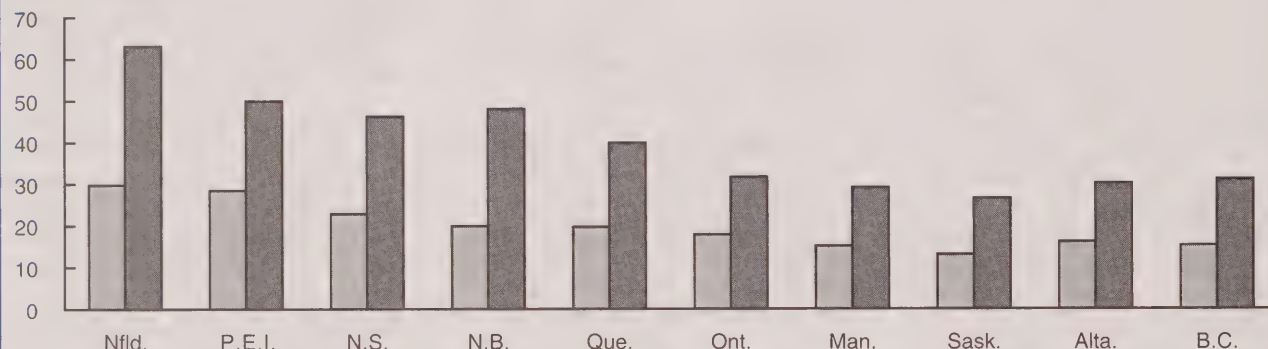
Chart B

In 1993, unemployment rates based on the SCF exceeded those based on the LFS.

Rate for individuals * (%)



Rate for families (%)



Sources: Survey of Consumer Finances (SCF) and Labour Force Survey (LFS)

* The LFS-based rate is the official unemployment rate.

ing varies according to which survey's figures are used. □

Notes

1 See *The Labour Force* (Catalogue no. 71-001-XPB) and *Labour Force Annual Averages 1981-1988 and 1989-1994* (Catalogue no. 71-529-XPB).

2 Estimates obtained through the SCF are based on events that occurred up to 16 months before the respondents were interviewed. Hence the questions used to measure employment and periods of unemployment cannot be as detailed as those used by the LFS.

3 Since families have two or more members, one would expect the number of members affected by unemployment during the year to be more than twice the number for individuals. This is not what is observed here, since regardless of the number of members experiencing a period of unemployment, a family is counted only once for a given year.

4 As a point of comparison, 9.8% of the population of Canada was affected by unemployment in 1993 according to the Labour Force Survey. This percentage rose to 23.0% according to the findings of the Survey of Consumer Finances. These proportions were calculated using estimates of the Canadian population on July 1, 1993.

References

Statistics Canada. *Guide to Labour Force Survey Data*. Catalogue no. 71-528-XPB. Ottawa, 1992.

---. *Quarterly Demographic Statistics*. April-June 1995. (Catalogue no. 91-002-XPB) 9, no. 2 (October 1995).

Appendix A

Unemployment rate by province

	LFS *				SCF **			
	1980	1983	1989	1993	1980	1983	1989	1993
	%							
Newfoundland								
Individuals	13.2	18.8	15.7	20.1	40.7	47.0	41.4	44.1
Families	19.0	25.9	23.9	29.8	54.2	61.8	58.9	63.1
Unattached individuals	8.6	11.0	10.1	14.3	44.9	22.2	29.2	33.5
Prince Edward Island								
Individuals	10.8	12.4	14.0	18.1	31.9	41.2	32.7	35.1
Families	15.8	19.4	23.2	28.5	53.9	57.3	51.2	49.9
Unattached individuals	10.9	12.6	12.7	20.6	11.2	55.6	27.8	42.6
Nova Scotia								
Individuals	9.7	13.1	9.8	14.7	24.4	29.8	24.4	28.6
Families	14.8	19.7	15.5	22.8	36.3	43.8	38.7	46.2
Unattached individuals	7.6	8.9	8.8	14.5	21.1	25.3	22.7	22.9
New Brunswick								
Individuals	11.1	14.8	12.4	12.6	30.2	35.1	28.4	31.5
Families	15.7	21.7	19.1	19.9	42.5	45.5	43.0	48.0
Unattached individuals	10.7	12.2	11.1	13.5	25.4	33.0	27.5	31.5
Quebec								
Individuals	9.9	14.0	9.3	13.2	22.7	29.3	22.5	25.8
Families	14.7	20.5	14.2	19.7	33.3	43.0	34.5	39.8
Unattached individuals	10.9	15.5	12.3	16.5	25.1	33.1	27.9	30.2
Ontario								
Individuals	6.9	10.4	5.1	10.6	14.7	20.7	13.0	18.6
Families	11.6	17.6	9.5	17.8	23.4	34.4	23.2	31.6
Unattached individuals	6.4	10.0	5.3	11.5	18.2	24.0	15.8	19.6
Manitoba								
Individuals	5.5	9.5	7.6	9.3	15.7	20.0	16.9	18.1
Families	9.0	15.7	12.8	15.1	23.7	32.7	25.6	29.1
Unattached individuals	6.6	10.0	8.0	11.8	20.0	23.3	27.5	23.8
Saskatchewan								
Individuals	4.4	7.4	7.5	8.0	12.6	18.5	15.7	16.3
Families	6.9	11.5	12.6	13.0	19.0	29.3	25.6	26.5
Unattached individuals	5.4	9.5	7.4	10.1	22.6	22.0	17.6	20.9
Alberta								
Individuals	3.8	10.7	7.3	9.7	14.1	23.2	16.3	18.5
Families	6.2	16.7	12.2	16.1	20.8	34.8	27.6	30.1
Unattached individuals	4.5	12.3	8.2	10.6	22.5	25.7	20.0	22.9
British Columbia								
Individuals	6.8	13.9	9.1	9.7	18.5	28.0	19.7	19.9
Families	11.1	21.0	15.1	15.2	29.1	43.2	30.6	31.0
Unattached individuals	6.5	15.2	9.5	12.8	24.5	30.8	23.5	27.4

Sources: Labour Force Survey (LFS) and Survey of Consumer Finances (SCF)

* Average of 12 reference weeks.

** Covers an entire year.

Appendix B

Unemployment rate by age and sex

Age		LFS *				SCF **			
		1980	1983	1989	1993	1980	1983	1989	1993
%									
Both sexes									
15 to 24 years	Individuals	13.1	19.7	11.2	17.7	26.2	33.8	21.4	24.3
	Families	17.2	26.4	18.5	25.4	48.0	56.9	43.5	53.4
	Unattached individuals	9.4	15.6	8.9	15.1	32.8	34.9	24.5	29.9
25 to 34 years	Individuals	6.6	11.8	8.0	11.8	19.9	27.7	21.8	26.3
	Families	9.8	16.9	12.4	17.4	28.8	40.2	33.8	37.5
	Unattached individuals	6.2	12.0	7.5	12.0	19.8	28.9	23.4	27.0
35 to 44 years	Individuals	5.0	8.6	6.2	9.4	14.7	20.7	15.9	19.9
	Families	11.1	16.9	12.0	16.9	26.1	33.6	26.5	32.3
	Unattached individuals	6.2	11.4	9.6	13.0	18.3	24.0	19.0	22.6
45 to 54 years	Individuals	4.8	7.6	5.2	8.4	12.3	18.5	13.4	17.0
	Families	14.7	22.2	13.4	19.4	29.1	43.4	29.0	34.3
	Unattached individuals	8.2	11.9	8.8	13.7	14.5	25.6	18.5	21.1
55 to 64 years	Individuals	4.5	8.1	6.3	9.6	10.0	17.8	14.1	18.6
	Families	12.0	18.8	12.0	18.4	24.0	37.7	27.8	35.2
	Unattached individuals	5.4	9.3	8.8	12.3	10.5	18.5	16.3	18.3
Men									
15 to 24 years	Individuals	13.6	22.2	12.3	20.2	27.5	36.7	23.9	28.5
	Families	16.6	25.9	18.4	24.1	48.6	57.2	43.4	54.2
	Unattached individuals	10.5	19.2	10.2	17.6	35.4	39.7	29.9	38.5
25 to 34 years	Individuals	6.0	12.2	7.4	12.5	19.4	29.9	22.9	29.4
	Families	9.5	16.5	11.9	16.6	29.2	40.6	34.0	37.5
	Unattached individuals	7.1	14.6	8.5	13.7	21.7	33.6	27.4	31.6
35 to 44 years	Individuals	4.3	8.2	5.6	9.5	13.9	20.6	15.0	20.5
	Families	10.7	16.2	11.6	16.2	26.1	33.5	26.1	32.0
	Unattached individuals	7.1	13.1	10.3	15.1	20.2	25.6	21.1	26.4
45 to 54 years	Individuals	4.1	7.4	4.8	8.2	11.7	19.6	12.9	17.9
	Families	14.2	21.9	13.1	18.7	28.5	43.0	28.6	34.5
	Unattached individuals	9.7	15.3	10.8	16.2	12.5	34.0	23.3	23.9
55 to 64 years	Individuals	4.3	8.2	6.4	9.9	9.7	19.0	14.6	19.8
	Families	11.8	18.5	12.0	17.7	22.8	36.1	26.9	34.5
	Unattached individuals	6.9	11.9	12.6	15.2	12.7	24.0	23.7	20.5
Women									
15 to 24 years	Individuals	12.5	16.8	10.0	14.9	24.7	30.5	18.8	19.9
	Families	20.9	28.8	18.8	27.1	40.5	54.8	43.9	50.6
	Unattached individuals	8.3	11.7	7.5	12.4	29.6	28.5	18.5	20.5
25 to 34 years	Individuals	7.6	11.3	8.7	10.9	20.4	24.9	20.5	22.6
	Families	13.4	19.9	14.6	19.7	23.5	34.5	31.7	37.9
	Unattached individuals	4.7	7.7	5.7	9.0	16.7	21.2	16.6	18.8
35 to 44 years	Individuals	6.1	9.1	6.9	9.2	15.9	20.9	16.9	19.3
	Families	16.8	23.2	14.3	19.3	25.8	34.5	30.6	34.3
	Unattached individuals	4.4	8.0	8.4	9.0	13.7	20.6	15.5	14.3
45 to 54 years	Individuals	6.1	8.0	5.9	8.6	13.3	16.7	13.9	15.8
	Families	21.1	25.4	15.3	23.1	34.7	46.4	32.2	32.7
	Unattached individuals	6.2	7.3	6.2	10.6	16.7	14.5	12.7	16.8
55 to 64 years	Individuals	5.1	7.9	6.1	9.3	10.6	15.7	13.1	16.9
	Families	15.2	23.0	12.7	24.2	36.5	54.1	36.4	41.9
	Unattached individuals	4.4	7.4	5.4	9.7	9.0	14.5	9.5	16.1

Sources: Labour Force Survey (LFS) and Survey of Consumer Finances (SCF)

* Average of 12 reference weeks.

** Covers an entire year.

Unionized workers

Diane Galarneau

Trade unionism in North America appears to be in decline. For example, in the United States, union density (the percentage of paid workers who are unionized) has fallen sharply, down from 23% in 1980 to 16% in 1990 (Riddell, 1993), while in Canada it has stagnated, ranging between 31% and 33%. Both countries have seen a shift in employment from the goods-producing sector, where unions are well established, to the service sector, where they are still experiencing some recruitment problems. This shift has created downward pressures on union density in both countries; the Canadian rate has not declined only because of the large number of unionized workers in the public sector.

Behind the apparent stability in union density in Canada lie a number of changes in the demographic and labour market characteristics of unionized workers. And while these changes in part reflect those undergone by the labour force as a whole, they are sometimes more pronounced among unionized workers. For example, women are participating in greater numbers in the labour market, but it is among unionized workers that their numbers have increased most; while the labour force in general is aging, this phenomenon is more pronounced among unionized workers; and while the decline of employment in manufacturing has affected many workers, unionized workers have been hit harder.

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With a brief historical review of the Canadian union movement, this article examines the stagnation of union density using data from the survey conducted under the *Corporations and Labour Unions Returns Act* (CALURA). It also looks at changes over time in the characteristics of unionized workers and compares these with their non-unionized counterparts; this information is drawn from a data source that has been rarely used, namely, household surveys (see *Two sources of data on unionized workers*). In addition to providing information on unionized workers' demographic characteristics, this source can be used to examine variables that are seldom available, such as seniority, hours of work, paid overtime and wages.

The history of unionization in Canada

The Canadian trade union movement grew out of the industrialization of the economy early last century. The growing workforce in the industrial sector as well as the increased concentration of businesses in the sector led workers to organize, as they increasingly found themselves performing comparable tasks. Specialized workers were the first to organize against the threat of mechanization. The year 1886 saw the birth of the American Federation of Labor and its Canadian counterpart, the Trade and Labour Congress of Canada. In 1902, Canadian nationalists founded the Canadian Federation of Labour, in reaction to the massive American influence.

Despite these movements, it was not until the 1920s that these groups began to have an influence on working conditions and real income of members (Rea, 1991).

These developments were temporarily stalled by the Great Depression of the 1930s after which union membership practically quadrupled (from 1940 to 1956). At the same time, different branches of the Canadian union movement united, a development that encouraged governments to adopt pro-labour legislation and that helped to strengthen the influence and prestige of the labour movement.

After 1956, union membership increased more slowly, owing to a decline in the pool of semi-skilled workers, the group most inclined to unionize, and a rise in the number of white-collar workers, less inclined to organize. The expansion of the federal public service, various provincial civil services and certain industries that had traditionally been highly unionized (including the automobile industry) contributed to a moderate increase in union membership by the mid-1960s (Eaton, 1976).²

From 1966 to 1993, union membership doubled, although union density changed only slightly, ranging between 31% and 33% (Table 1). Nearly two-thirds of the total growth in employment during this period (5.5 million) was among non-unionized workers, who increased their numbers by 3.6 million. Nevertheless, union membership among women quintupled, while the percentage of women who were unionized almost doubled, rising from 16% to nearly 30%. Men saw their unionization rate fall slightly, from 38% to 35%, while their numbers increased by just 39%.

Two sources of data on unionized workers

CALURA has long been the only major source of data on unionized workers. However, this source provides little information on the demographic and labour market characteristics of these workers. This study created a series on unionized workers based on two household surveys (HS) that over the past 10 years have collected information on both employment and union membership: the Survey of Union Membership of 1984 and the Labour Market Activity Survey from 1986 to 1990.

In these two surveys, union membership was determined according to responses to the following two questions:

1. *In connection with your job, were you a member of a union or other group that bargained collectively with your employer?*
2. *Although you were not a member of a union, were your wages covered by a collective agreement negotiated by a union or other group?*

With these two questions, it is possible to calculate two rates, one based on the first question only and the other based on both. In the latter case, what is calculated is a rate of coverage by a collective agreement, as opposed to union density (unionization rate). The two rates reflect a distinction that exists in the labour world: all union members are covered by a collective agreement, but not all workers covered by a collective agreement are

members of a union. The coverage rate is usually 4 to 5 percentage points higher than the union density obtained from household surveys.

Union density according to CALURA and household surveys (HS) and coverage rate according to HS

	Union density		Coverage rate
	CALURA *	HS	HS
	%		
1984	34.5	37.9	42.5
1985	33.8	..	..
1986	34.1	35.6	40.1
1987	33.3	34.1	38.8
1988	33.7	34.8	39.3
1989	34.1	35.9	40.6
1990	34.7	35.2	39.5

Sources: CALURA, Union Membership Survey and Labour Market Activity Survey

* This rate corresponds to the one based on LFS estimates not reweighted in accordance with the estimates from the 1991 Census. This rate is used only for this table, as the estimates from the HS are also not reweighted.

Union density based on household surveys is always higher than that of CALURA. There are various reasons for this gap including the following:

- These two sources have a slightly different reference period: for CALURA, the reference period is December 31 of each year, whereas for the household surveys it corre-

sponds to the LFS reference period of December for the years 1984 and 1986 to 1990 (usually the week that includes the 15th of the month).

- CALURA is an enumeration of unions with 100 or more members, whereas the household surveys are based on a sample that imposes no limit on the number of members.
- The series based on household surveys restricts the age of paid workers to between 17 and 69 inclusive.¹ For CALURA, there is no such age limit.
- Unemployed persons and pensioners may belong to a union. They are included in the CALURA figures, but because of the definition of paid workers used in the household survey files, they are excluded from this source.
- The denominator used in calculating union density – the number of paid workers – differs depending on the source used. In the case of CALURA, the number of paid workers comes from the Labour Force Survey for December of each year, whereas the HS produce their own counts of paid workers, which do not necessarily correspond to those of the LFS.

This article focuses on union density, since CALURA does not provide data on coverage rates.

Stagnation of union density

The shift of jobs from the goods sector to the service sector is widely considered to be largely responsible for the stagnation of union density.³ From 1976 to 1992 there was a decline in employment in the goods sector (with its proportion of paid workers falling from 32% to 24%) and a decline in union density from 43% to 38% (Table 2).⁴ This decline was largely attributable to the manufacturing industries, whose share of paid workers

fell from 22% to 16%, and whose unionization rate dropped from 43% to 33%.

By contrast, the service sector saw major growth, in terms of both total employment – its share rose from 68% to 76% from 1976 to 1992 – and unionization. Union density in this sector rose from 26% to 32%.⁵ Unions already had a foothold in the public sector, although it was private services⁶ that exhibited the greatest increase in employment; indeed, 62% of the

total increase in the number of paid workers between 1976 and 1992 was attributable to these industries. In 1976, private services had accounted for 33% of paying jobs, compared with 40% in 1992, when union density in those services was still under 10%. By comparison, union density in public administration rose from 69% to 75%.

If union density is stagnating, it is mainly because manufacturing industries are in decline, and new companies are slow to become

Table 1
Union membership and union density by sex

Year	Union membership			Union density *		
	Total	Men	Women	Total	Men	Women
	'000			%		
1966	1,881	1,558	323	30.8	38.4	15.9
1967	2,056	1,654	402	33.2	40.9	18.7
1968	2,142	1,705	438	33.0	40.1	19.5
1969	2,215	1,746	468	33.0	39.6	20.2
1970	2,228	1,714	513	32.6	38.3	21.7
1971	2,319	1,761	557	31.4	36.6	21.6
1972	2,355	1,780	575	31.9	37.9	21.4
1973	2,552	1,917	635	32.6	38.6	22.1
1974	2,645	1,968	676	32.6	38.6	22.4
1975	2,701	1,990	711	31.8	37.0	22.9
1976	2,736	1,986	750	31.2	37.6	22.4
1977	2,785	2,003	781	31.2	37.4	22.6
1978	2,872	2,038	834	30.8	37.0	22.7
1979	2,987	2,101	886	30.8	37.2	22.7
1980	3,048	2,120	928	30.5	36.7	22.9
1981	3,108	2,133	975	31.0	37.5	23.3
1982	2,997	2,016	981	31.3	37.8	24.0
1983	3,335	2,155	1,180	33.5	39.2	27.5
1984	3,381	2,169	1,210	33.2	37.6	27.4
1985	3,435	2,181	1,253	32.5	36.7	27.1
1986	3,551	2,250	1,301	32.7	36.9	27.3
1987	3,614	2,261	1,353	32.0	36.0	27.0
1988	3,717	2,311	1,406	32.1	36.1	27.2
1989	3,826	2,314	1,511	32.5	36.0	28.2
1990	3,841	2,288	1,552	33.1	36.6	29.1
1991	3,825	2,249	1,576	33.4	36.7	29.6
1992	3,803	2,211	1,587	33.2	36.1	29.8
1993	3,768	2,167	1,601	32.6	35.0	29.8

Sources: CALURA and Labour Force Survey

* Union density is the ratio of the number of workers who belong to a union to the number of paid workers.

unionized. Unions are perhaps less suited to the businesses experiencing the greatest job growth, namely, small companies with fairly few employees, consisting largely of women and offering forms of employment that are often atypical (part-time or temporary) (Bélanger and Murray, 1994; Krahn, 1995). The needs and expectations of this new group probably differ from those of the unionized worker of the 1960s and 1970s, who was typically a man working full time in a large manufacturing firm.

Apart from this shift in jobs, stagnation of union density is said to be sometimes due to unions' difficulty in operating in a renewed management system (Trudeau and Veilleux, 1995). Traditional man-

agement at times maintained a climate of confrontation between employers and employees, giving rise to collective agreements that were often rigid; by contrast, renewed management, which is based on mutual trust, tends to encourage employee involvement and co-operation in the company and to make work allocation more flexible, all with a view to better meeting the heightened competition among firms in this era of the global marketplace. The employees of such companies would be less inclined to unionize.

This situation is not universal, however, and there are examples of unionized firms, often motivated by the desire to save jobs, that have managed to adapt (Harrisson and Laplante, 1994).

Unionization by province

Union density varies greatly from one province to another. In 1992, Newfoundland had the highest union density with 53%, followed distantly by Quebec (39%) and British Columbia and Manitoba (36%). Whichever province is considered, employment is concentrated mainly in services, manufacturing and trade. The variation in union density between provinces thus depends on the extent to which these industries are unionized.

Newfoundland, Quebec and British Columbia owe their relatively high union density to their strongly unionized service industries (44%, 44% and 37%, respectively, compared with 34% for Canada as a whole), which accounts for more than a third of all workers in these provinces. Manitoba, on the other hand, derives its high union density from the transportation and communication industries and manufacturing.

Because Alberta's manufacturing and service industries are among the least unionized in Canada (21% and 26%), that province has the lowest union density.

Changing demographic traits of organized labour⁷

The stagnation of union density conceals certain changes in the demographic and labour market characteristics of unionized workers over the short study period (1984 to 1990).

Sex

In 1984, unionized workers were typically men (61%) (Table 3). Six years later, women had increased their presence in the unionized labour force, representing 43% of unionized workers. During this time, women only slightly increased their presence among non-unionized workers, having already in 1984 accounted for nearly half the paid workers in this category.

Table 2
Union density by industry

	1976	1977	1978	1979	1980	1981	1982	1983	1984
	%								
All industries *	31.2	31.2	30.8	30.8	30.6	31.0	31.3	33.5	33.2
Goods sector	43.4	44.6	41.9	41.4	41.3	41.9	42.5	40.7	36.7
Agriculture	0.3	0.4	0.1	0.4	0.4	0.3	0.2	0.2	1.1
Other primary industries	43.2	41.0	37.7	34.2	33.0	37.7	33.1	32.0	30.6
Manufacturing industries	43.3	44.2	42.2	42.4	41.6	42.5	42.5	40.2	37.6
Construction	54.1	56.6	52.1	50.3	55.3	51.5	59.4	60.1	45.9
Service sector	25.6	25.3	25.8	26.0	25.9	26.4	27.1	30.8	31.9
Transportation and communication **	49.7	51.0	49.3	48.2	50.9	50.9	51.6	57.0	54.4
Trade	8.1	7.8	7.3	7.9	8.6	8.5	8.6	8.7	9.4
Finance, insurance and real estate	2.6	2.2	2.2	2.3	2.4	2.7	2.9	2.4	2.6
Services †	21.9	21.5	22.9	22.9	23.3	24.5	25.2	32.4	35.5
Public administration	68.9	66.9	72.0	74.0	65.5	66.3	66.0	69.4	69.3
	1985	1986	1987	1988	1989	1990	1991	1992	
	%								
All industries *	32.5	32.7	32.0	32.1	32.6	33.1	33.4	33.2	
Goods sector	35.9	37.5	36.1	36.2	36.4	37.4	38.1	37.6	
Agriculture	1.1	1.2	1.1	1.8	1.9	1.7	1.7	1.6	
Other primary industries	30.5	33.5	34.6	31.9	33.2	33.4	35.5	36.0	
Manufacturing industries	36.5	36.8	35.4	35.0	34.6	34.9	34.5	33.4	
Construction	45.8	51.7	48.5	50.0	50.4	56.3	60.7	61.7	
Service sector	31.1	30.9	30.4	30.5	31.2	31.7	31.9	31.8	
Transportation and communication **	51.0	54.2	54.4	53.5	51.0	52.3	52.6	50.6	
Trade	9.5	9.4	9.7	9.9	11.0	11.0	11.0	11.3	
Finance, insurance and real estate	2.6	2.7	2.9	3.2	3.1	3.4	3.5	3.7	
Services †	34.8	33.4	32.8	32.0	33.2	34.3	34.5	34.0	
Public administration	68.9	72.9	73.1	74.1	76.5	77.0	74.0	74.8	

Sources : CALURA and Labour Force Survey

* Union density for all industries may not be exactly the same as that for Canada as a whole (Table 1). This is because the total for Canada includes some unemployed and retired persons who remain union members even though they are no longer working; the latter are excluded from the figure for all industries.

** Also includes the following industries: electric power systems, water systems, gas distribution systems and waste disposal systems.

† Includes business services, education, health and social services, accommodation, food and beverage services, amusement and recreation services, personal and household services, associations, and other services.

Age

From 1984 to 1990, the average age of unionized workers was 4 years older than that of non-unionized workers. However, the age distribution of the former had changed. For example, the proportion of union members aged 17 to 34 slipped by 7 percentage points (from 44% to 37%), compared with a decline of 5 points (from 58% to 53%) for non-unionized workers (Table 3). This steeper decline may be due in part to seniority rules, which tend

to favour older unionized workers, especially in periods of recession.⁸ Also, the shift of jobs toward service industries meant the creation of non-unionized positions, often filled by young persons.

The rapid growth of the group aged 35 to 54 contributed to the ranks of both unionized and non-unionized workers, the younger of whom were part of the postwar baby boom. This age group contains relatively more unionized

workers than non-unionized, a trait unchanged throughout the study period. Workers aged 55 to 69 also continued to be more numerous among the ranks of the unionized.

Education

The figures for 1990 show a general increase in workers' level of education from 1984. But unionized workers were better educated than their non-unionized counterparts (Chart A). They also tended to fall into the extremes with respect

to educational level: in 1990, 7% of unionized workers had less than nine years of education, while 45% had a postsecondary certificate or a university degree; the corresponding percentages for non-unionized workers were 5% and 38%.

Among unionized workers it was mainly men who accounted for the high percentage with little education, whereas mainly women occupied the higher ranks. This characteristic reflects the distribution of unionized workers by industry: a significant percentage of those with a low educational level (especially men) were in the manufacturing industries and other primary industries, while the more educated (to a greater extent women) were in the service industries (such as education, health and social services) and public administration.

Labour market characteristics

Industry

In 1984, some 86% of unionized workers were concentrated in four out of nine major industry groups: the service industries, the manufacturing industries, public administration, and transportation and communication (Table 4). Union density in each of these industries was also above the Canadian average (Table 2).

By 1990, these various industries taken together still accounted for the same proportion of unionized workers; however, their relative employment size had changed somewhat. Thus the decline in employment in the manufacturing industries reduced that industrial group's share of both unionized and non-unionized employment: this group fell from 25% to 21% and from 18% to 17%, respectively (Table 4). In fact, unionized workers suffered a net loss of 15% (-128,000), whereas non-unionized workers registered a net gain of 4% (41,000) during the period. The share lost by the manufacturing

Table 3
Distribution of workers by union membership, age and sex

	1984			1990		
	Total	Unionized	Non-unionized	Total	Unionized	Non-unionized
	'000					
Total	9,156	3,466	5,690	9,994	3,514	6,480
	%					
17 to 24 years	22	11	28	16	8	21
25 to 34 years	31	33	30	31	29	32
35 to 44 years	23	28	20	28	32	25
45 to 54 years	15	18	13	17	21	14
55 to 69 years	9	10	8	9	10	8
	'000					
Men	5,046	2,131	2,915	5,274	2,006	3,268
	%					
17 to 24 years	20	11	27	16	8	21
25 to 34 years	31	31	31	31	28	33
35 to 44 years	24	28	20	27	31	24
45 to 54 years	16	19	13	17	22	13
55 to 69 years	10	11	9	10	11	9
	'000					
Women	4,110	1,335	2,775	4,720	1,508	3,212
	%					
17 to 24 years	24	12	30	17	9	21
25 to 34 years	31	35	29	30	30	30
35 to 44 years	23	29	20	29	33	26
45 to 54 years	14	16	13	17	20	15
55 to 69 years	8	8	7	8	8	8

Sources: Survey of Union Membership and Labour Market Activity Survey

industries was captured by services, which had nearly 500,000 more workers than in 1984. Even though almost three-fourths of this job gain was among non-unionized workers, the share increased most for unionized workers, owing to the decline in the relative size of the manufacturing industries.

Agriculture, the other primary industries, and finance, insurance and real estate accounted for only a small share of unionized workers in 1984 and 1990 (increasing from 3% to 4% overall during the period). Agriculture and finance, insurance and real estate also registered low union density (Table 2). These industries are somewhat ill-suited to union

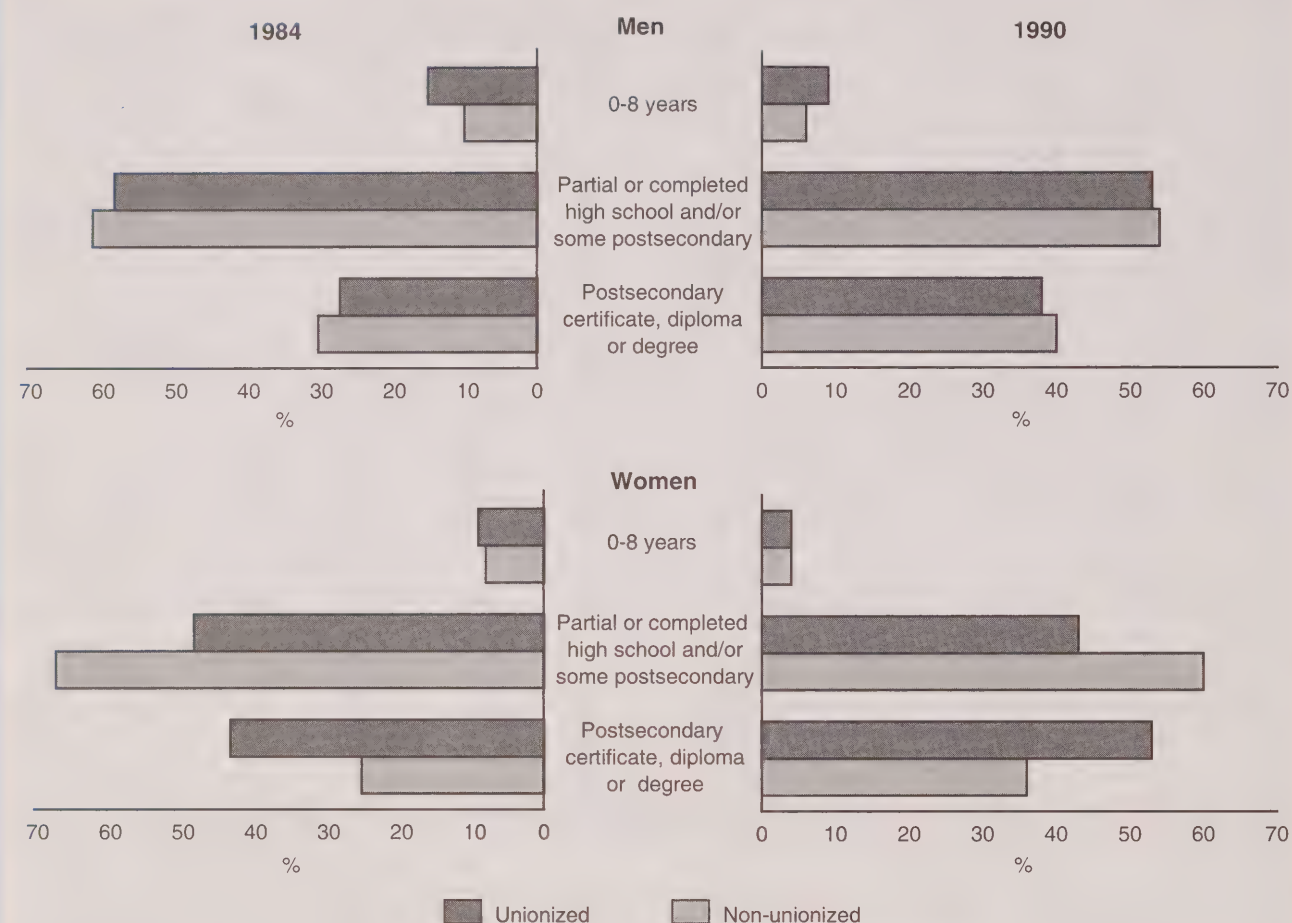
organization, since they are largely made up of small firms. In some cases, such as for banks, union membership was not, and is still not, generally part of the corporate culture.

Occupation

In 1984, 60% of unionized workers were in white-collar positions, compared with 76% of non-unionized workers (Chart B). By 1990, the proportion had increased slightly for unionized workers (63%) owing to an increase in management and professional positions, as well as positions related to services, but it remained stable for non-unionized workers. On the other hand, the percentage of unionized workers in blue-collar

Chart A

Unionized women were more likely to be highly educated.



Sources: Survey of Union Membership and Labour Market Activity Survey

positions declined, owing to a decrease in the number of unionized workers in occupations in processing, machining and manufacturing.

Work patterns and usual hours of work

A unionized worker is less likely to be employed part time than a non-unionized worker, although the gap has narrowed considerably over the years. In 1984, some 8% of all unionized workers were employed part time, compared with 19% of non-unionized workers. However, between 1984 and 1990, nearly

two-thirds of the total increase in part-time work was attributable to unionized workers. Consequently, by 1990, the percentage of unionized workers working part time had risen to 12%, probably owing to the increase in union membership among women, whereas it had fallen slightly to 18% among non-unionized workers.

Average usual hours of work per week differ only slightly depending on whether or not a worker belongs to a union. Unionized full-time workers tend to work

fewer hours on average than their non-unionized counterparts (40 hours versus 42), whereas unionized part-time employees work more hours than their non-unionized counterparts (20 hours versus 18).

Seniority

It is no surprise that union members work for longer periods for the same employer than do non-unionized workers. In fact, throughout the study period, even though seniority declined in both groups,⁹ it was nearly twice as high for union-

Table 4
Distribution of workers by union membership and industry

	1984			1990		
	Total	Unionized	Non-unionized	Total	Unionized	Non-unionized
	'000					
All industries	9,156	3,466	5,690	9,994	3,514	6,480
	%					
Goods sector	28	31	26	26	28	25
Agriculture	1	--	1	1	-	2
Other primary industries	3	2	3	2	2	2
Manufacturing industries	21	25	18	18	21	17
Construction	4	4	4	5	5	5
Service sector	72	69	74	74	72	75
Transportation and communication *	8	13	5	8	13	6
Trade	17	6	24	17	6	23
Finance, insurance and real estate	6	1	8	6	2	8
Services **	32	33	32	35	37	33
Public administration	8	15	4	8	15	4

Sources: Survey of Union Membership and Labour Market Activity Survey

* Also includes the following industries: electric power systems, water systems, gas distribution systems and waste disposal systems.

** Includes business services, education, health and social services, accommodation, food and beverage services, amusement and recreational services, personal and household services, associations, and other services.

ized workers (8.8 years compared with 5.0 for non-unionized workers). Seniority was higher among unionized men than among unionized women (9.9 years compared with 7.3), a situation that also applied to non-unionized workers (5.7 and 4.2, respectively).

Beyond the fact that union members are more likely to have better job security, their higher seniority may be due to other factors. For instance, some highly unionized firms have been in existence for many years (such as in manufacturing, transportation, communication and other utilities), which enables their employees to accumulate more years of seniority. In addition, a significant percentage of unionized workers (15%) are employed in the civil service at various levels of government, where until quite recently there was excellent job security.

Remuneration

Wage rates

Throughout the study period, unionized workers maintained a considerable advantage over their non-unionized counterparts in terms of hourly wage rates. Their lead was \$3.33 (in constant 1990 dollars) in 1984 and \$4.06 in 1990 (Table 5).

However, unionization aside, the wage disparity may be due to other factors as well, since unionized workers have certain characteristics that put them at an advantage. For example, as noted earlier, these workers were typically male and slightly older, with more seniority; furthermore, unionization is known to be more common among large firms than among smaller ones (Morissette, 1991) (Chart C). These factors, combined with in-

dustry- and occupation-related differences, also explain the wage disparity.

Among full-time workers, the wage disparity between unionized and non-unionized was greater for women (\$4.39 in 1990) than for men (\$2.67) probably because, as already noted, unionized women are relatively better educated than their non-unionized counterparts, and many are employed in the public sector.

Between 1984 and 1990, the wage disparity between unionized and non-unionized workers widened, both for men and women, whether employed full time or part time.

Furthermore, when unionized workers worked overtime, they more often received premium pay than their non-unionized counterparts: among workers who put in overtime in November 1991, 78% of those who were unionized were entitled to premium pay corresponding to at least one-and-a-half times their hourly wage, compared with 49% of those who were non-unionized.¹⁰

Coverage by retirement plans

Unionized workers were twice as likely to be covered by a retirement plan as were their non-unionized counterparts.

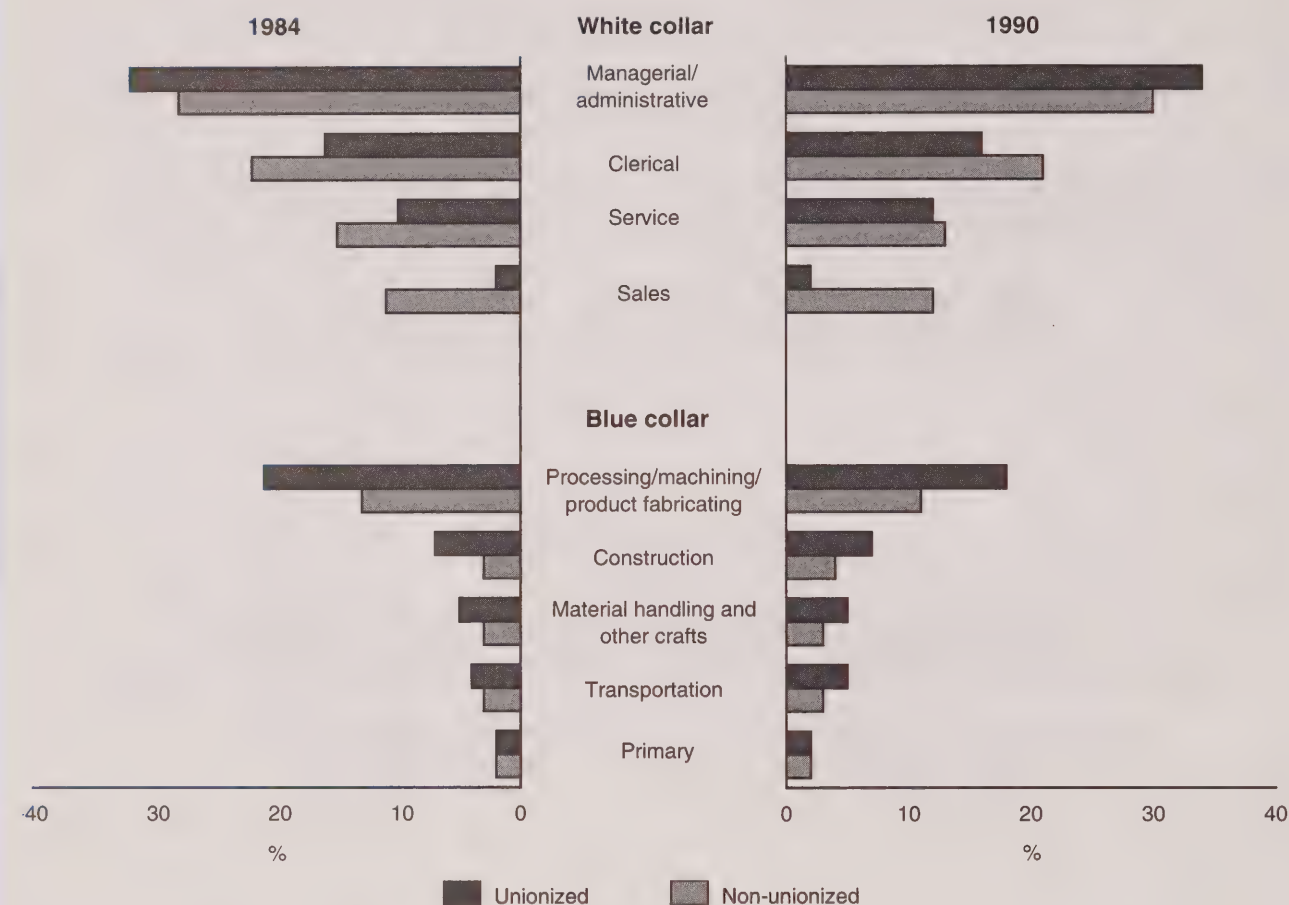
From 1984 to 1990, the percentage of union members covered by a pension plan fluctuated slightly but remained in the range of 77%. Among non-unionized workers, the percentage of employees covered by a pension plan slowly rose, increasing from 30% in 1984 to 33% in 1990.

Summary

Despite a major increase in union membership, union density in Canada has been stagnating for a number of years. This stagnation may be attributed to the shift of jobs from the goods to the service

Chart B

The distribution across occupations of both unionized and non-unionized workers changed little.



Sources: Survey of Union Membership and Labour Market Activity Survey

sector, which would have led to a decline in the unionization rate had it not been offset by the increase in the number of unionized workers in the public sector.

Since 1984, the profile of the typical unionized worker has undergone changes similar to those of the average Canadian worker. For example, in 1984, unionized workers were more typically men, but in 1990 women's share had risen. Their education level increased, as it did for the labour force as a whole, although in the

case of women the education gap widened between unionized and non-unionized workers. Unionized workers were more likely to work in the manufacturing industries in 1984, whereas in 1990 they were more likely to be employed in service industries and to hold a management position or practise a profession.

Certain characteristics of unionized workers and their non-unionized counterparts changed little between 1984 and 1990. Unionized workers were still less likely

than the non-unionized to be employed part time; their hours of work were comparable in number to those of non-unionized workers, and they worked for a longer period for the same employer than did non-unionized workers. The wage disparity between the two groups remained substantial throughout the study period but was not attributable solely to union membership. Among workers putting in overtime, the unionized were still more likely than the non-unionized to receive premium pay for the extra

Table 5
Average wage rates by union membership, sex and work pattern

	1984		1990	
	Unionized	Non-unionized	Unionized	Non-unionized
	1990 \$			
Total	13.62	10.29	17.53	13.47
Men	14.51	12.05	18.68	15.50
Women	12.21	8.45	16.01	11.40
Full-time	13.74	10.99	17.77	14.20
Men	14.59	12.68	18.74	16.07
Women	12.17	8.78	16.22	11.83
Part-time	12.27	7.36	15.87	10.21
Men	11.46	6.69	17.60	9.98
Women	12.46	7.61	15.28	10.29

Sources: Survey of Union Membership and Labour Market Activity Survey

hours worked. And a higher percentage of unionized workers were covered by a retirement plan.

It is hard to predict the future of the union movement in Canada. Will overall union density remain in the 33% range, as observed over the past three decades? Will it increase, or will it decline as seen in the United States? The answer is not clear. Reductions to the civil service, combined with the decline in the relative size of the manufacturing industries, will tend to bring the rate down. On the other hand, certain factors will tend to increase overall union density, namely, the continuing growth of the service sector, in which union membership has risen somewhat in recent years. The effect of these two opposing forces will determine the direction of overall union density in Canada.

□

Notes

1 While the household surveys cover persons 16 years of age, the latter were deliberately excluded from the present analysis so that the survey data could be compared with those of another Statistics Canada database containing information on union member-

ship (the Adult Education and Training Survey), which does not cover 16 year-olds. Their exclusion should not lead to major differences in the results of this study, since, at that age, few persons participate fully in the labour market.

2 In the mid-1960s, legislation was introduced enabling public sector employees (in government, the education, health and social service industries, and certain Crown corporations such as Air Canada) to unionize.

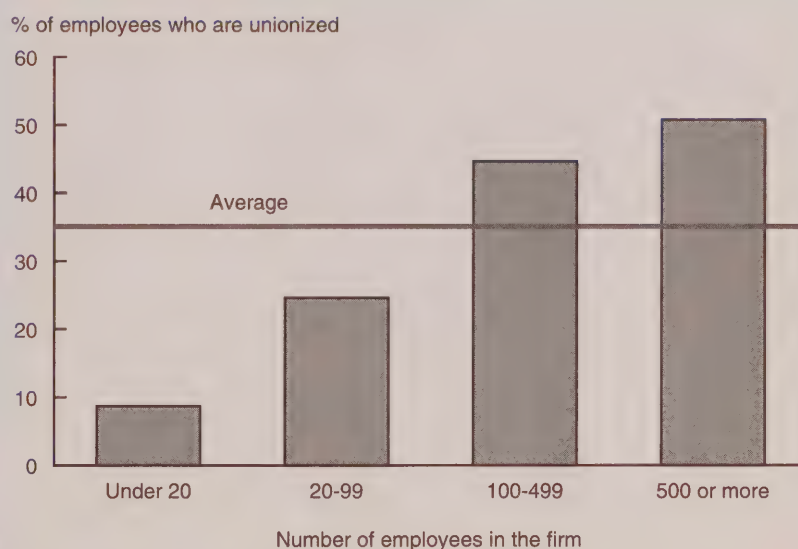
3 In fact, this shift would probably have caused a decline in union density had there not been an increase in the number of public sector employees, most of whom are unionized.

4 When this article went to press, unionization rates by industry were not yet available for 1993.

5 The growth of union membership in the service sector since 1976 is due in part to a change in the *Corporations and Labour Unions Returns Act* that was introduced in 1983. This change added certain professional associations, such as those of nurses, doctors and teachers, which prior to 1983 were not included in the enumeration of labour unions. The effect of this inclusion can be clearly seen in Table 2: from 1982 to 1983, union density in the service industries jumped from 25% to 32%.

6 In this study, private services include trade industries, finance, insurance and real estate, and other services such as business services, accommodation, food and beverage services, amusement and recreation, personal and household services, and associations.

Chart C
The proportion of unionized workers rises with firm size.



Source: Labour Market Activity Survey, 1990

7 The following concerns data from household surveys. The analysis for this part is not based on union density, since these rates differ in some ways from those from CALURA. For further details, see *Two sources of data on unionized workers*. Most data on union membership presented in this section do not extend beyond 1990 or 1991, since for various financial and logistical reasons they have not been subsequently collected through household surveys. However, more recent data on union membership, which will soon be available, have been collected by the Survey of Labour and Income Dynamics, which replaced the Labour Market Activity Survey. In addition, starting in 1997, it will be possible to obtain union membership data on a regular basis as a result of the redesign of the Labour Force Survey.

8 1990 was a recession year, and 1984 was a year of expansion.

9 Average seniority as measured here does not reflect actual seniority but simply the period between the effective date of commencement of employment and the date on which the survey was conducted. In the case of seasonal workers, seniority is calculated from the date of commencement of employment each year. In other words, these workers cannot accumulate more than one year of seniority. For further details on this variable, see Belkhodja (1992).

10 This figure is drawn from the Survey of Work Arrangements of November 1991.

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What's new?

■ JUST RELEASED

■ *Trends in retirement income probed in new report*

The three major pension income programs in Canada – government-administered/sponsored, employer-sponsored and individually sponsored – represent one of the largest pools of investment capital in the country, with accumulated assets of almost \$658 billion in 1993. To date, no single publication has presented both a descriptive and statistical picture of these important programs. *Canada's Retirement Income Programs: A Statistical Overview* (Catalogue no. 74-507-XPB) fills that gap. Each subject matter chapter explains the purpose of the plan or program under discussion and offers a brief history of its evolution, providing a solid context for the statistical analysis that follows. The report focuses on retirement benefits, although some programs also provide survivor and disability benefits. (The report uses the term "retirement income" even though some of the programs it covers, such as Old Age Security, are not contingent on the recipient's employment history.)

The major components of Canada's retirement income system are

■ *Government-administered/sponsored plans*

Old Age Security/Guaranteed Income Supplement (OAS/GIS) – this program guarantees a minimum income to all persons 65 years and older.

Canada and Quebec Pension Plan (C/QPP) – this program provides a maximum benefit of 25% of the average wage earned by workers. Participation is compulsory for almost all workers aged 18 and over.

■ *Employer-sponsored plans*

Registered pension plans (RPPs), group registered retirement savings plans (RRSPs) and deferred profit sharing plans (DPSPs) – these plans are intended to provide a source of income when employment income ceases with retirement, but coverage is far from universal.

■ *Individually sponsored plans*

Registered retirement savings plans (RRSPs) – these plans offer individuals with earned income the opportunity to save (within limits) for retirement. Contributions are entirely voluntary.

Some of the highlights in the report include the following:

- From 1983 to 1993, a relatively constant proportion of the Canadian labour force – 88% to 92% – contributed to the C/QPP. A similarly constant, but much smaller percentage of workers – between 35% and 37% – belonged to an employer-sponsored RPP during this period. In contrast, the percentage of workers contributing to RRSPs almost doubled, to about 35% of the labour force in 1993, up from 18% in 1983.
- Between 1983 and 1993, annual contributions to the three major retirement income programs (C/QPP, RPPs, RRSPs) rose by 138%, to reach \$50 billion. RPPs accounted for the largest amount contributed, but their share was smaller in 1993 (41%) than in 1983 (54%). This is partly because growth in RRSP contributions outstripped that of RPPs (250% versus 80%).

How do these programs affect individuals? *Canada's Retirement Income Programs* reports the following:

- In 1993, RPPs, OAS/GIS and the C/QPP supplied 56% of the total income of persons 65 and older, up from 43% in 1983; much of this increase is attributable to the C/QPP, whose share of income in this age group rose from 11% in 1983 to 17% in 1993. Income from private pensions (that is, RPPs) also rose slowly, to make up 20% of seniors' total income by 1993.
- Over 82% of those 65 and older collected C/QPP benefits in 1993, compared with less than 75% in 1983. Most of the growth occurred among women, reflecting their increasing numbers in the workforce. In 1993, 92% of men and 73% of women drew benefits from this program.
- Men were much more likely than women to receive RPP income during the 1983-93 period. In 1993, 58% of men had retirement income from private pensions, compared with only 37% of women.
- Investment income is the second most important source of income for seniors, but it accounted for only 27% of their total income in 1993, largely because of relatively low interest rates; furthermore, only 70% of those aged 65 and older received investment income in 1993, down considerably from 88% in 1983.

Canada's Retirement Income Programs: A Statistical Overview (Catalogue no. 74-507-XPB) is available for \$54. It replaces the annual publication *Pension Plans in Canada* (Catalogue no. 74-401-XPB) for the reference period January 1, 1994. Please contact any Statistics Canada Reference Centre, or Marketing Division, Sales and Service, Statistics Canada, Ottawa K1A 0T6; fax (613) 951-1584. Or call toll free 1 800 267-6677. □

■ ***International survey confirms that literacy linked to economic well-being***

It is widely accepted that literacy is crucial to a country's well-being: inadequate levels of adult literacy threaten economic productivity and, by marginalizing the poorly literate, jeopardize social stability. Therefore, when recent surveys in Canada and the United States showed that a significant proportion of adults in both countries lacked basic literacy skills, the Organisation for Economic Co-operation and Development (OECD) commissioned a large-scale study of literacy in industrialized nations. Its findings are reported in *Literacy, Economy and Society: Results of the First International Adult Literacy Survey* (Catalogue no. 89-545-XPE).

The International Adult Literacy Survey (IALS), jointly managed by Statistics Canada and the Educational Testing Service in the United States, was conducted in seven countries – Canada, Germany, the Netherlands, Poland, Sweden, Switzerland and the United States (testing was done in English and French in Canada and in German and French in Switzerland). The IALS had two objectives: to develop literacy scales that enable the comparison of people with widely varying abilities, and to compare the literacy skills of people in different countries. The survey covered more than 23,000 respondents aged 16 and over (including about 5,660 in Canada) in autumn 1994. Respondents first completed a 20-minute background interview and then took 45 minutes to work on a set of literacy tasks pre-selected from the test matrix. Their abilities were scored on a scale of 0 to 500; they were then classified into literacy levels from one (lowest) to five (highest). The data collected represent the most comprehensive picture yet developed of literacy and its relationship to the demographic and socioeconomic characteristics of European and North American adults.

The IALS used a very broad definition of literacy, describing it as information-processing skills used to perform many types of tasks at work, at home or in the community. Respondents were assessed in each of three "domains" of literacy:

- ***prose***: ability to understand and use information from text, such as editorials, newspaper articles, poems and fiction;

- ***document***: ability to locate and use information presented in different formats, such as job applications, payroll forms, maps, tables, graphs and timetables;
- ***quantitative***: ability to apply arithmetic functions to numbers embedded in printed material, for example, balancing a cheque-book, calculating a tip, or filling in an order form.

The survey collected information not only on literacy levels, but also on literacy practices, that is, activities that can influence the continued acquisition of literacy skills ("getting better by doing") or their gradual loss ("use it or lose it").

Some of the major findings from the IALS are presented below. (Levels 4 and 5 were combined because Level 5 accounts for less than 5% of the adult population in most countries.)

- Generally speaking, men and women have similar literacy profiles in all seven countries, although women tended to score slightly higher on prose skills while men did better on quantitative skills.
- In all participating countries, low literacy levels are closely linked to high unemployment rates; in contrast, people with high levels of literacy are more likely to be in the higher income quintiles.
- As expected, there is a fairly consistent relationship between occupations and literacy: the majority of managers and professionals are people at Levels 3 and 4/5, while clerical and technical workers are most likely to be at Levels 2 and 3. Workers in agricultural and other primary occupations have the lowest literacy skills.
- The literacy skills of craft workers differ considerably across countries; in Canada and the United States, 25% to 30% are at Level 1 compared with only 7% in Germany. This probably reflects the more rigorous qualifications generally required of craft workers in Europe.
- An important relationship exists between literacy and changes in employment by industry. On the whole, workers in growing industries have the highest average literacy scores, while those in dying industries have the lowest average scores. In almost all countries, high growth industries – for example, finance and personal services – have high percentages of Level 4/5 workers; in contrast, agriculture and manufacturing have high percentages of workers with Level 1 literacy abilities.

Literacy, Economy and Society: Results of the First International Adult Literacy Survey (Catalogue no. 89-545-XPE) is available for \$50 from any Statistics Canada Reference Centre, or from Marketing Division, Sales and Service, Statistics Canada, Ottawa K1A 0T6; fax (613) 951-1584. Or call toll free 1 800 267-6677.

An analytical report on the IALS results for Canada only will be available in the summer. □

■ ***Value of unpaid work done by Canadian households calculated***

Since the 1970s, Statistics Canada has been developing measures of unpaid work that could be compared or even combined with the gross domestic product (GDP). Earlier studies dealt with the unpaid work households do for themselves, such as cooking and cleaning, child care and shopping. In *Households' Unpaid Work: Measurement and Valuation* (Catalogue no. 13-603-XPE no. 3), the definition of unpaid work has been expanded – it now includes volunteer work and helping friends, relatives and others – and coverage has been extended by almost 20% by including all persons aged 15 and over living in private households.

National accounts guidelines recommend that estimates of unpaid work be kept in a set of accounts separate from the GDP, in order to maintain a clear distinction between market and non-market production. But there are valid reasons to estimate the value of unpaid work even if it is not to be formally included in the GDP. Unpaid work represents a major use of resources, and the economic indicators now in use (which measure the market economy only) can exaggerate the magnitude of the business cycle because labour resources shift between the market and non-market sectors of the economy over time. Estimates of unpaid work can help economists describe more completely how the country's economic resources are used; develop a better understanding of the interaction between the market and non-market sectors of the economy; identify the type of work being done without pay, the costs incurred and the benefits gained; and recognize the extent to which Canadians help themselves, their family and friends, and the community at large.

The main objective of the study is to assess trends in unpaid work from 1961 to 1992 using standardized definitions and methods. It covers people aged 15 and over living in private households, and uses two basic methods of valuation: opportunity cost and replacement cost. With the opportunity cost method, the unpaid labour of a person who earns or could earn, say, \$20 an hour on the market is valued at that rate of pay. With the replacement cost method, time spent on unpaid work is assigned the average hourly rate of paid workers who

perform the same tasks; for instance, preparing meals at home is valued at the average earnings of cooks, say, \$15 an hour. Each method is refined further: opportunity cost is imputed before and after taxes; replacement cost is imputed based on the earnings of domestic staff (generalist) or on the earnings in specific occupations where the paid work is similar to the unpaid work being valued (specialist).

In five comprehensive chapters, *Households' Unpaid Work* examines the concepts of productive activity, economic value and the household as a productive unit; discusses data sources and methods of measurement and valuation; presents trends in unpaid work by valuation method, province, demographic group and type of activity; estimates economic growth using a definition that includes GDP plus the value of unpaid work at constant prices; and compares the unpaid work estimates for Canada with those of other OECD countries.

Some highlights of the report's findings follow:

- In 1992, the volume of unpaid work done in Canada translated into the equivalent of about 12.8 million full-year, full-time jobs. Household work accounted for about 95% of unpaid work, yet formal volunteer work and helping out friends, relatives and neighbours amounted to the equivalent of over 730,000 full-year, full-time jobs.
- Canadians aged 15 and over spent 15 billion hours on unpaid work, or an average of 1,220 hours, in 1961; by 1992, the total amount of time devoted to unpaid work had increased considerably, to 25 billion hours, but the average number of hours had dropped to 1,160 hours. This decline in the average was due mainly to demographic change and increased employment, particularly among women.
- On average, women did less unpaid work than in 1961 – they were more likely to be employed and less likely to have children in 1992 – while men were doing more.
- The share of unpaid work performed by women has declined marginally since 1961, but still accounted for over two-thirds of unpaid work hours or some 16 billion hours in 1992, despite a near doubling in women's labour force participation rate.

The estimated dollar value of unpaid work differs considerably depending on the time period selected as well as the valuation method used to calculate it.

- The value of unpaid work, measured at current prices, increased substantially between 1961 and 1992 owing partly to population growth but especially to the rise in wages. The lowest estimate – \$14 billion in 1961 and \$235 billion in 1992 – was

calculated using the replacement cost (generalist) method. The highest estimate – \$26 billion for 1961 and \$374 billion for 1992 – was derived using the opportunity cost (before tax) method.

- In current dollars, the annual average value of unpaid work per person amounted to \$1,160 in 1961 and \$10,890 in 1992 on the replacement cost (generalist) basis, and \$1,780 and \$10,270 using the opportunity cost (after tax) method. The rise in wages accounts for most of this increase over time.
- The annual averages per person mask significant variations among various groups; for instance, in 1992, the replacement cost of the unpaid work done by mothers who were not employed was as high as \$30,000.
- Although the dollar value of unpaid work has risen, three of the four valuation methods show that its proportion of GDP has declined over the last 30 years. The greatest drop was estimated by the opportunity cost (after tax) method, which calculated the value of unpaid work at 52% of GDP in 1961 and 32% in 1992. In contrast, the replacement cost (generalist) approach estimated it as roughly 34% of GDP in both years.
- The value of unpaid work expressed as a percentage of GDP is generally higher in the Atlantic region and Quebec, and lower in provinces with higher employment, such as Ontario and Alberta.

Households' Unpaid Work: Measurement and Valuation (Catalogue no. 13-603-XPE no. 3) is available for \$38 from any Statistics Canada Reference Centre, or from Marketing Division, Sales and Service, Statistics Canada, Ottawa K1A 0T6; fax (613) 951-1584. Or call toll free 1 800 267-6677. □

■ **Analytical Studies Branch Research Paper Series**

Restructuring in the Canadian Manufacturing Sector from 1970 to 1990: Industry and Regional Dimensions of Job Turnover

J.R. Baldwin and M. Rafiquzzaman
Research Paper Series no. 78

In Canada, each region has a concentration of one or two groups of manufacturing industries. These industry groupings have responded differently to economic pressures of the last two decades; therefore, job creation and destruction might be expected to have affected the regions differently. This paper investigates the pattern and magnitude of job turnover across industries and regions, and looks at changes from the 1970s to the 1980s.

The authors divide the manufacturing sector into five groups of related industries, and then identify those that are concentrated in different regions of the country – the natural resource-based (the Atlantic provinces and the Prairies), the labour intensive (Quebec), the scale-based (Ontario and British Columbia), the product-differentiated and the science-based industry groupings. The analysis is divided into two time periods to assess whether the nature of job turnover in the 1970s differs from that of the 1980s. Highlights of the findings include the following:

- In the 1970s, the annual reallocation of jobs averaged about 20.5% in Canada as a whole; total job turnover differed across the regions, with the highest rates being recorded in the Prairies and Quebec.
- By the 1980s, the average annual national turnover rate was about 4.1 percentage points higher than it had been in the previous decade; this gain was due to an increase in both job growth and job losses, indicating that restructuring had become more important than cyclical factors.
- There were no statistically significant differences between the job turnover rates in the various regions; however, the restructuring process, which had begun in Quebec in the 1970s, was well under way in the other regions in the 1980s.
- In the 1980s, the product-differentiated industries, followed by the labour-intensive industries, recorded the most volatile job turnover rates.

The authors conclude that although total job turnover grew in all industry groups and in all regions, the biggest employment changes due to economic restructuring were recorded in the labour-intensive and product-differentiated industry groups in British Columbia.

Why Has Inequality in Weekly Earnings Increased in Canada?

R. Morissette
Research Paper Series no. 80

During the 1980s, inequality in earnings increased in Canada. Although previous studies have examined this phenomenon in terms of annual hours (volume of work), this one examines it in terms of weekly hours. The author presents the basic facts underlying the trend:

- The real average weekly earnings of men in the bottom quintile of earners fell by 4% while those of men in the highest quintile increased 9%. The corresponding figures for women were a decline of 1% and an increase of 7%.

- The number of hours worked per week rose for both men and women in the highest earnings quintile, and declined for those in the bottom quintile.
- Wage differences widened between workers aged 25 or more with different educational levels.
- The proportion of men and women working 35- to 40-hour work weeks dropped significantly, while the proportion working more than 50 hours rose. This observation held true for unionized and non-unionized workers.
- The growth in long work weeks coincided with the increase in the average hours of paid overtime; furthermore, high-wage workers were the most likely to be working longer hours. This trend was observed across all major industrial groups and in both unionized and non-unionized jobs.

Arguing that any explanation must reconcile these facts, the author discusses several hypotheses recently put forward to explain growing wage inequality. He concludes that

- the shift of employment from manufacturing to the service sector and changes in the unionization rate account for about 30% of the growth in weekly wage inequality, but they are not dominant factors;
- the decline in real minimum wages and the shrinking size of the average firm, which tend to have a greater effect on younger than older workers, have not really affected wage differentials;
- the declines in real annual earnings and new marginal tax rates introduced in the 1980s do not appear to have caused those workers affected by the change to increase their hours of work.

The author does agree that the evidence is consistent with the technological change hypothesis, which proposes that the demand for highly skilled workers has widened the wage gap between older, experienced/educated workers and younger, less experienced/educated workers. Other possible explanations for growing wage inequality cannot be tested by the existing data, but the author suggests they include increasing competitive pressures (including international trade), employers' increasing leverage in bargaining with employees, the greater geographic mobility of firms, and rising fixed costs of labour (including training).

Social Transfers, Changing Family Structure and Low Income among Children

G. Picot and J. Myles

Research Paper Series no. 82

Since the 1970s, the average real earnings of young adults under 35 have steadily declined. With the

majority (60%) of children under 7 living in households where the highest earner is under 35, one might expect the incidence of children living in poverty to rise. However, while the percentage of children living in low income families has risen and fallen with recessions and expansions during this period, there was relatively little change in the actual incidence of preschool children living in low income families.

At first glance, this finding seems contrary to popular beliefs, but there are several reasons why this has occurred. Although real median income has been falling among young families, between 1981 and 1988 it remained largely unchanged for families with children (both two- and single-parent families). In contrast, unattached individuals and couples without children saw declines in median family income of 10% to 11%, mainly because of a government tax transfer system that has always benefited families with children. Between 1973 and 1991, the shares of earnings (market income) and transfer payments in the "income package" of low income families with children were inverted. For example, in low income families with children under 7, transfers accounted for almost two-thirds of total disposable income in 1991, up from only one-third in 1973.

Families today are also very different from those of 10 to 20 years ago: couples are having fewer children and are having them at a later age; and parents are better educated and are collectively working longer hours because mothers are more likely to be in the labour force. The apparent stability in the median incomes and rates of low income among young families is due largely to these demographic and labour supply changes. And while the number of single-parent families has increased considerably over the same period, placing some upward pressure on the incidence of child poverty, the authors conclude that this effect is small relative to other changes in the household characteristics of families with children.

Thus, labour market pressures on low income among families with children have been offset by social transfers, on the one hand, and by changes in family formation and the labour market behaviour of young adults on the other. The result has been relative stability in the incidence of low income among families with children throughout the 1980s and early 1990s.

To order studies in the Research Paper Series, contact your nearest Statistics Canada Reference Centre, or write to Publications Review Committee, Analytical Studies Branch, Statistics Canada, 24th Floor, R.H. Coats Building, Ottawa, Ontario K1A 0T6. Or phone (613) 951-1804. □

■ LFS REDESIGN

In the last several years, the Labour Force Survey (LFS) has been undergoing a complete redesign. Major changes in sample design and collection technology have already been implemented; in the final phase, to be completed by January 1997, a new questionnaire and processing system will be introduced. The new questionnaire will provide additional information on the volume and characteristics of jobs, addressing data needs that have emerged since the current one was introduced in 1976. It will be administered using notebook computers, which replace the more restricted pen-and-paper questionnaires.

In preparation for the introduction of the new questionnaire, the LFS has implemented changes to some of its estimates. These changes will allow estimates from the current and the redesigned questionnaires to be aligned, and smooth the phasing-in process (during the last few months of 1996). The changes are the following:

■ *Refined definition of part-time and full-time employment*

Since 1976, individual workers have been considered part-time or full-time depending on the total number of hours they usually work per week at all jobs combined (less than 30, or 30 or more hours). But with about 5% of working Canadians holding more than one job, and a growing number of people stringing together part-time jobs to gain the equivalent of full-time employment (104,000 workers in 1994), it is now more meaningful to classify the *job* rather than the *person* as part-time. With this change, those people working full-time hours in a collection of part-time jobs become eligible to answer the LFS questions about their main reason for working part time.

There are also a significant number of persons (132,000 in 1994) who report themselves as full-time workers even though they work less than 30 hours a week. This subjective assessment of work status was useful in rare but valid circumstances where employment policy, legislation or other binding conditions limited the number of hours the employee was permitted to work (for example, airline pilots). However, recent analysis of the response data suggests that most of these workers are not restricted to a maximum number of working hours per week, and they should more properly be considered part-time workers.

When self-classified full-time workers are reclassified to part-time jobs, the proportion of the workforce employed part time rises from 17.0% to 18.0% in 1994, and when workers are classified as part-time on the basis of their main job only, the proportion rises to 18.8%.

■ *Change in estimates of reason for working part time*

Estimates of the reason for working part time must now include the two groups added by the new definition of part-time employment (see above). However, because these workers were not asked why they worked part-time, they will be assigned to the "other reasons or not known" category, thereby increasing the number of persons working part time for "other reasons." This solution does not provide a seamless link to the historical data series, but it does pave the way for the data that will be collected by the new LFS questionnaire.

■ *Time lost (work absence) restricted to employees only*

Since data on the number of hours lost and the reason for absence from work are most useful to employers, this information is now required from employees only. Tables containing estimates of hours lost have been revised.

■ *Job description limited to those who have worked within the last 12 months*

Among persons not currently employed, industry and occupation data on the last job are now collected for those who have worked within the previous 12 months. Limiting the coverage to one year (it had previously been five) reduces respondent burden and improves the relevance of the data, which are generally used in analysis of worker displacement. Excluding respondents who last worked more than one year ago will lower labour force and unemployment estimates, as well as unemployment rates for the different industry and occupation groups. For example, under the revised system, data for 1994 show unemployment rates for most industries about two percentage points lower than earlier estimates, while those for most occupation groups are two to three percentage points lower.

■ **Publication of some estimates are suspended**

The new LFS questionnaire will ask more direct questions in order to measure "involuntary part-time" and "discouragement" levels among Canadian workers. Data available starting in 1997 will be more accurate than those available now, and will probably lead to a complete break in the data series.

Of the eight alternative measures of unemployment, four will be directly affected by changes in the LFS questionnaire, and all eight are currently under review. Therefore, production and publication of these measures have been suspended.

As of January 1996, all published tables in *The Labour Force* (Catalogue no. 71-001-XPB) and *Labour Force Information* (Catalogue no. 71-001P-XPB) are based on revised definitions. All 1995 year-end products – including *Historical Labour Force Statistics* (Catalogue no. 71-201-XPB), *Labour Force Annual Averages* (Catalogue no. 71-220-XPB), *Labour Force Historical Review on CD-ROM* (Catalogue no. 71F0004XCB) and CANSIM – also reflect the changes.

For further information about changes to the Labour Force Survey, contact Deborah Sunter at (613) 951-4740, or Jean-Marc Lévesque at (613) 951-2601; fax (613) 951-2301. □

■ **UPCOMING CONFERENCE**

■ ***The Changes in Working Time in Canada and the United States***

June 13-15, 1996. Ottawa.

The structure of work has changed dramatically in the last decade, particularly with reference to non-standard and part-time work. This conference provides a forum for the presentation and discussion of new research on the topic of working time, and will be of interest to economists, policy analysts, human resources specialists, and labour analysts from the private sector, government, academia and social agencies.

More than 30 papers will be presented over the course of three days. Topics to be addressed include changing hours of work, non-standard employment, part-time work, worksharing, working time of women, life cycle considerations of working hours, and policy dimensions. Many of these issues will be illustrated with case studies from the private and public sectors.

The conference is sponsored by the Canadian Employment Research Forum (CERF), in co-operation with Human Resources Development Canada, Statistics Canada, and the W.E. Upjohn Institute for Employment Research.

For further information, contact Garnett Picot at (613) 951-8214. □

Key labour and income facts

We're changing!

In an effort to better serve its readers, *Perspectives* is proposing a new format for presenting "Key labour and income facts." Beginning with this issue, the usual table providing up to 2 years of data for each indicator will not be published. Instead, some graphs based on several indicators will serve as a preview of a new, more analytical format. The indicator data (on paper or diskette), along with documentation, are still available upon request (see *Data*).

The redesigned department is expected to appear in the Autumn issue, or sooner. In the meantime, why not send along any suggestions for what you would like to see in "Key labour and income facts."

The data for the labour and income indicators are drawn from 11 sources, including published and unpublished annual data. These indicators, covering labour market, earnings, income and other household topics (for Canada, the provinces and territories), are updated each quarter. For a recent list of the specific indicators, consult the Winter 1995 issue of *Perspectives on Labour and Income*.

Sources

Currently, the indicators are derived from the following sources:

Labour Force Survey

Frequency: Monthly
Contact: Doug Drew (613) 951-4720

Survey of Consumer Finances

Frequency: Annual
Contact: Kevin Bishop (613) 951-2211

Absence from Work Survey

Frequency: Annual
Contact: Nancy Brooks (613) 951-4589

National Work Injuries Statistics Program

Frequency: Annual
Contact: Horst Stiebert (613) 951-4044

Help-wanted Index

Frequency: Monthly
Contact: Sylvie Picard (613) 951-4090

Unemployment Insurance Statistics Program

Frequency: Monthly
Contact: Sylvie Picard (613) 951-4090

Survey of Employment, Payrolls and Hours

Frequency: Monthly
Contact: Sylvie Picard (613) 951-4090

Major wage settlements, Bureau of Labour Information (Human Resources Development Canada)

Frequency: Quarterly
Information: (819) 997-3117

Labour income

Frequency: Quarterly
Contact: Ed Bunko (613) 951-4048

Household Facilities and Equipment Survey

Frequency: Annual
Contact: Penny Barclay (613) 951-4634

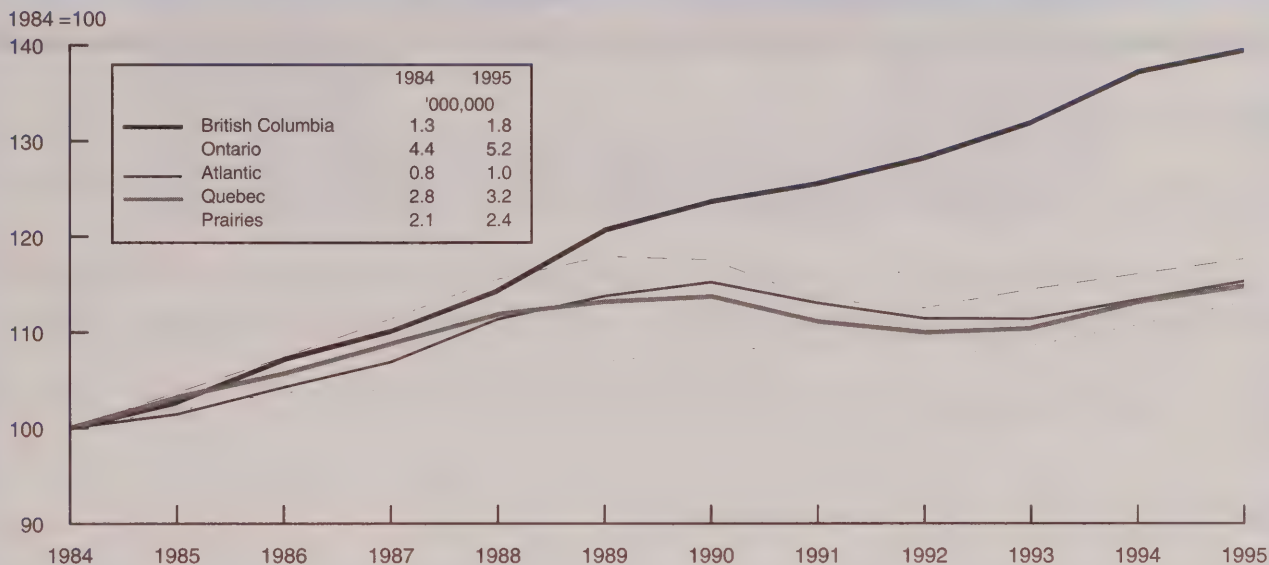
Small area and administrative data

Frequency: Annual
Customer Services: (613) 951-9720

Data

Previously, the printed table in each issue provided, at the most, 2 years of data for each indicator. A longer time series (generally 10 years or more) for the set of indicators can be obtained, on paper or diskette, at a cost of \$50. An extensive explanation of the indicators is also available. In addition, work is in progress to make the indicator data available on the Internet in the near future. For further information, contact Jeannine Usalcas at (613) 951-6889; fax (613) 951-4179.

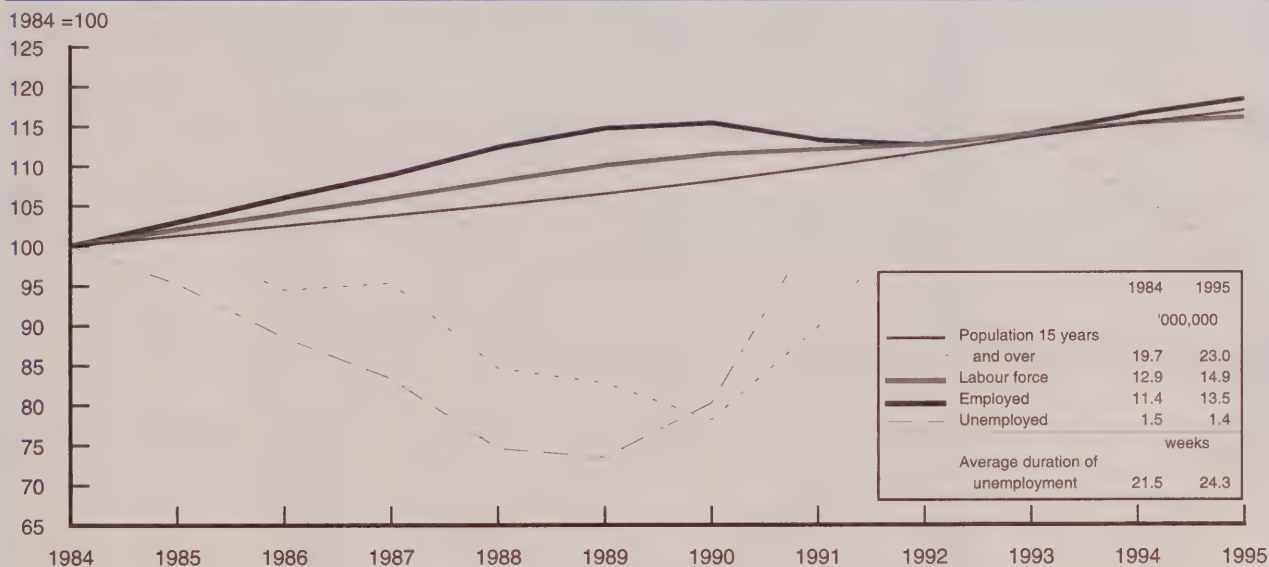
Regional employment growth has been uneven. *



Source: Labour Force Survey

* Since 1984, employment has risen in all regions, though the pace has been unequal. The largest growth occurred in British Columbia, where increases were registered even during the recession.

Labour market indicators have reflected movements in the economy. *



Source: Labour Force Survey

* Between 1984 and 1993, the percentage increase in both employment and the labour force exceeded population growth. Since then, employment growth has outpaced increases in population and the labour force. Movements in both unemployment numbers and duration have tracked changes in the economy fairly well. However, while the 1995 unemployment number (1.4 million) was similar to that of 1984, average unemployment duration was almost three weeks longer in 1995.

In the works

Here are some of the topics to be featured in upcoming issues

■ Pension myth or fact?

This note investigates whether there has been a wide-scale membership switch from defined benefit RPPs to defined contribution arrangements in recent years.

■ Work deaths

Work-related fatalities are compared over time in terms of fatality counts and rates by industry, occupation, region and selected demographic characteristics.

■ Changes in average family incomes

This paper presents a technique for examining the effects of demographic and labour market factors on average family incomes.

■ Adult literacy survey

This seven-nation study, conducted by Statistics Canada and the Organisation for Economic Co-operation and Development, acknowledges the complexity of the adult literacy problem worldwide. It also provides results of the first international comparison of various literacy skills among workers in a broad range of industries.

■ Do earnings rise until retirement?

It is popularly held that someone with a steady job will receive increasing (or at least steady) pay until retirement day. In any given year, however, earnings of men working full year full time are higher at age 45 than at age 60. This paper explores several possible explanations for the observed patterns.

■ Dual earnings, dual pensions?

This study examines whether increases in dual-earner families have translated into increases in dual-pensioner families.

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The quarterly for labour market and income information

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SUMMER 1996

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Perspectives on Labour and Income (Catalogue no. 75-001-XPE; aussi disponible en français: *L'emploi et le revenu en perspective*, n° 75-001-XPF au catalogue) is published four times a year under the authority of the Minister responsible for Statistics Canada. ©Minister of Industry 1996. SUBSCRIPTION RATES: \$56 a year in Canada, US\$68 in the United States, US\$80 in other countries. Single issue \$17 in Canada, US\$21 in the United States, US\$24 in other countries. ISSN: 0840-8750.

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Indexed in the *Canadian Index*, *Canadian Periodical Index*, *P.A.I.S. International* and *Sociological Abstracts*, and available online in *Canadian Business and Current Affairs* and *Employee Benefits Infosource*. Also indexed in French in *L'Index de l'Actualité* and *Point de Repère*.

■ Articles

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Catherine Hardwick

The International Adult Literacy Survey (IALS) measured the variation in basic literacy skills of adults in seven industrialized nations. This note outlines the aims and methodology of the landmark study and provides a snapshot of results for people in Canada, the United States and Germany.

14 The marginally literate workforce

Susan Crompton

This article, also based on the IALS, compares the literacy levels of workers aged 16 to 65 in Canada, the United States and Germany. Of particular interest are the low scores achieved by a significant minority of Canadian workers. As expected, a relationship exists between literacy skills, occupation and industry.

22 Pension fact or fiction?

Hubert Frenken

This article challenges the notion that defined benefit registered pension plans have been abandoned in great numbers. It also examines why this perception has arisen and to what extent recent conversions to group RRSPs have contributed to this idea.

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26 A job to die for

Katherine Marshall

This paper looks at causes, counts and rates of work-related deaths by selected demographic and job characteristics. It also touches briefly on the financial cost of such fatalities.

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37 The future of data dissemination

Report on a symposium

Last November, Statistics Canada hosted its 12th annual International Symposium on Methodology Issues. This report outlines selected speakers' observations about the radical changes taking place in the creation and delivery of statistical information.

Symbols

The following standard symbols are used in Statistics Canada publications:

- .. figures not available
- ... figures not appropriate or not applicable
- nil or zero
- amount too small to be expressed
- p preliminary figures
- r revised figures
- x confidential to meet secrecy requirements of the Statistics Act

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI Z39.48 – 1984.

■ The previous issue of "Forum" outlined some of the dilemmas that regularly confront statisticians. One dilemma was omitted from the list because it deserves a letter of its own: whether or not to roll up a set of statistics into a highly aggregated summary, or global, measure.

A highly aggregated summary measure is a calculation that combines other statistical measures to devise a single number that represents certain conditions or events more succinctly. For example, the official unemployment rate aggregates unemployment levels in all regions of the country to summarize general conditions in the Canadian labour market; the Consumer Price Index aggregates fluctuations in the retail prices of hundreds of goods and services to summarize changes in market prices for consumers; the gross domestic product (GDP) aggregates dozens of individual statistics about manufacturers' shipments, wholesale and retail sales, capital investment, the value of residential construction, and so on to summarize the total value of goods and services produced in the market economy.

The temptation to produce global summary measures is quite strong and there are valid reasons for succumbing. Many people do not have the time or the skills to interpret the extensive array of detail available in the typical database, so a highly aggregated summary statistic can increase meaningful access to data. A summary measure at a high level of aggregation also has great analytical efficiency. *Perspectives'* mid-year and year-end labour market reviews would be long and tedious if general economic conditions could not be succinctly described with reference to changes in the GDP.

Highly aggregated summary measures also allow people to "get on with the debate." Several years ago, when Statistics Canada reviewed its low income measures, it was clear that the user community wanted a global measure that would categorically identify poor people. Analysts believed that only then could they spend their time solving the problem instead of defining it.

On the other hand, highly aggregated summary measures can mislead. They may be used even though a more appropriate measure is available. For example, an analyst studying part-time workers will be better off using the unemployment rate for the part-time labour force than using the official unemployment rate, since the latter is based on the total (full- and part-time) labour force. (See "Alternative measures of unemployment," Winter 1992, for a description of the different types of unemployment rates calculated and released by Statistics Canada.)

An unquestioning reliance on global measures can also lead people to overlook important information. This may happen because they want a single measure to do the impossible – to reconcile the positive and negative movements that exist simultaneously in any set of statistics. For example, if the unemployment rate does not change from one month to the next, some people tend to assume that the labour market is static. But a stagnant summary measure can mask great turmoil: the official unemployment rate will remain the same if a drop in unemployment levels is offset by a corresponding drop in employment.

Another drawback to global measures is that they are more vulnerable to being applied and interpreted in ways that were never intended. This happens regardless of what Statistics Canada may repeatedly advise. The unemployment rate is often misinterpreted as an indicator of personal economic hardship, while the GDP is often used as a measure of how well off Canadians are collectively, when all it does is measure the aggregate value of market production. Similarly, Statistics Canada's low income cut-offs are frequently used as poverty lines, despite the Agency's well publicized contention that poverty is too subjective a concept to be measured by a single statistic.

It is because of these limitations that the International Adult Literacy Survey (IALS) – selected results are reported in this issue – does not make use of global or highly aggregated summary measures. Readers of "The marginally literate workforce" may want to conclude

that Germans are more literate than Canadians, but they cannot. The IALS does not define people as literate or illiterate; it identifies them as being somewhere between Level 1 (lowest) and Level 5 (highest) on a literacy scale. A higher percentage of Canadian workers than German function at Level 1, but a higher percentage also function at Level 5. Of course, many people would like to say that Country A is more literate than Country B, but how can a single statistical measure really show that one country is "better than" another? Confronted by the demand for a global statistic, but aware that such a measure might over-simplify a complex issue, the IALS managers have resisted the temptation to produce one.

Ian Macredie
Editor-in-Chief



We welcome your views on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

Statistics Canada reserves the right to select and edit items for publication. Correspondence, in either official language, should be addressed to: Heather Berrea, What's new? Editor, *Perspectives on Labour and Income*, 5-D Jean Talon Building, Statistics Canada, Ottawa K1A 0T6. Telephone (613) 951-8613; fax (613) 951-4179.

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Please take a few moments to let us know how we are doing by completing the form on page 53 and returning it (or a copy) by mail or fax. If you have further comments or questions, feel free to use additional sheets.

Highlights

■ International survey on adult literacy

... p. 8

- Literacy skills have never been more important to national economies. Information and communications technology, as well as globalization, are forcing economies into an ever growing reliance on versatile and highly literate workers.
- The first International Adult Literacy Survey, conducted in 1994 and co-sponsored by Statistics Canada, measured the variation in basic literacy skills of adults across diverse languages and cultures. It used three scales or domains – prose, document and quantitative literacy – to assess a common set of skills for various tasks.
- Prose tests measured people's ability to interpret such items as product labels and owners' manuals. Document tests assessed their understanding of job applications and schedules, etc. Quantitative tests measured their ability to calculate interest or use a weather chart, for example. According to their responses, adults were then classified into five levels of mastery for each of the three domains, Level 1 representing the lowest and Level 5, the highest.
- Results show that around 43% of Canadian adults have only marginal literacy (Level 1 or 2) for each of the three domains, while less than one-quarter reach the high levels (4 or 5). Roughly one-third have Level 3 literacy.
- This article describes the aims and methodology of the new survey and provides a snapshot of general results for Canada, the United States and Germany.

■ The marginally literate workforce

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- This article profiles the significant minority of Canadian workers aged 16 to 65 who possess only marginal literacy skills (Level 1 or 2), as determined by the first International Adult Literacy Survey. It also looks at results for workers in the United States, our largest trading partner, and in Germany, the principal economic power in Europe.

- About 36% of Canadian workers have marginal literacy skills in each of the three domains tested (prose, document and quantitative literacy). In comparison, just over 40% of workers from the United States function at Level 1 or 2. In Germany, the scores are more varied across domains: 44% of workers function at the marginal level in prose literacy, 36% in document literacy and 27% in quantitative skills.
- Between 41% and 52% of Canadian workers in manufacturing; agriculture/mining and quarrying; construction/transport, storage and communication; and trade and hospitality are marginally literate. In contrast, fewer than 30% of workers in financing, insurance, real estate and business services and community, social and personal services test at Level 1 or 2 literacy.
- As expected, there is a relationship between literacy and occupation, as different jobs demand different skills. About 20% of Canadians in management/professional occupations have only marginal literacy skills (mainly Level 2), compared with 49% to 59% of craft workers and machine operators and assemblers (depending on the type of literacy being measured).
- Full-time workers are more likely than part-time to test at Level 1 or 2 literacy. About 39% of full-time workers possess marginal prose literacy compared with 27% of part-timers. The gap narrows with document literacy and almost disappears when quantitative skills are examined.

■ Pension fact or fiction?

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- Are employers and workers switching from defined benefit registered pension plans (RPPs) to defined contribution arrangements? A growing number in the pension and benefits industry believe there has been a widespread conversion, especially toward group RRSPs. This study suggests otherwise.
- The percentage of paid workers covered by defined benefit RPPs actually changed very little in recent years, from 40% in 1986 to 39% in 1994. Upon further inspection, data show that the proportion of public sector workers covered by defined benefit

plans increased (from 82% in 1986 to 88% in 1994), while it declined only marginally for private sector paid workers (from just over 27% to 25%).

- There is, however, evidence of increased defined contribution coverage. For example, membership in defined contribution RPPs grew by 56% from 1986 to 1994. Although these plans are numerous, they have always covered relatively few workers.
- The number of workers participating in group RRSPs has also grown dramatically in the last 10 years. This surge is an important consideration when one calculates the percentage of workers with some form of pension provision and may, over time, significantly reduce the defined benefit share of retirement savings.

■ A job to die for

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- Accidental death related to work, although rare, commands attention because it happens unexpectedly to otherwise healthy people. In addition to accidents, death can result from illness caused by exposure to environmental hazards in the workplace. These work-related deaths can reduce productivity because of temporary shutdowns, loss of morale and the training of replacement workers.
- This article traces job-related fatalities over three 6-year periods between 1976 and 1993. It examines differences in fatality counts and rates by industry, region, occupation, age and sex. It also provides information on causes of death and on the financial costs associated with these deaths.
- Over the 18-year period studied, there has been a substantial reduction in the national work-related fatality rate: from 11 per 100,000 paid workers in the 1976 to 1981 period, to 7 per 100,000 between 1988 and 1993.
- From 1988 to 1993, manufacturing experienced the highest number of work-related fatalities among paid workers (863), although it had one of the lowest death rates (8 per 100,000). The fishing and trapping industry had the highest rate with 113 deaths per 100,000 paid workers.
- Two occupations had strikingly high fatality rates in the 1988 to 1993 period: mining and quarrying (specifically, cutting, handling and loading) with a rate of 281 per 100,000 paid workers, and construction (insulating), with 246 per 100,000.

- One in five work-related fatalities during the 1988 to 1993 period resulted from exposure to harmful substances, such as poisons or chemicals. Almost as many workers died from accidents involving transportation vehicles or from being struck or caught by objects.

- Fatality costs can also be deadly. Although fatalities accounted for only 0.1% of all injury and fatality claims in 1993, benefits paid amounted to \$361 million (6.4% of the total). Benefits averaged \$492,000 per fatality, compared with \$6,000 per injury.

■ Do earnings rise until retirement?

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- Many people believe that a steady job provides regular pay increments up to retirement. Available data, however, show that average earnings of men employed full year full time are higher among 45 year-olds than among 60 year-olds. For example, according to 1981, 1986 and 1991 Census data, the average earnings of Canadian men aged 60 to 64 were 85% to 87% those of men aged 45 to 49.
- This article examines several possible explanations for this decline. It looks at hours worked and at earnings for certain age groups over time. It also explores the possibility that changes in the workforce composition of older age groups are an important factor behind the noted decline in earnings.

■ The future of data dissemination

... p. 37

- Last November, Statistics Canada hosted its 12th annual International Symposium on Methodology Issues. This report summarizes selected speakers' remarks concerning the analysis and dissemination of statistical information. It covers such topics as the type of integrated data needed today, the response of statistical agencies to user demands, and the effect of information technology on the distribution of data.
- Two overriding themes emerged from the symposium. The first was technological: the effect of computing power on the collection, processing and management of data, and the effect of telecommunications on the way the data are

distributed. The second was financial: the changes being made by statistical agencies required to do more with fewer resources.

■ What's new?

... p. 43

- Results from the Canada Pension Plan (CPP) Disability Beneficiaries Survey conducted in May 1995 are now available. The purpose of the survey was to develop a demographic profile of CPP beneficiaries, and to collect information to evaluate the CPP disability program. Data were also collected on education, work, and income, among other variables.
- Actuarial evaluations of the Canada and Quebec Pension Plan (C/QPP) were released in the *Canada Pension Plan Fifteenth Actuarial Report as at 31 December 1993* (tabled in the House of Commons in February, 1995) and *Analyse actuarielle du Régime de rentes du Québec au 31 décembre 1994* (completed December 1995). The reports examine the effects of important changes since the previous valuations and assess the financial implications of different economic conditions and demographic profiles. They also project future costs based on various assumptions, such as population aging, fluctuations in immigration and annual increases in employment income.
- A new Statistics Canada database combines a wide variety of economic and social statistics for approximately 140 urban and subprovincial areas. The Small Area Business and Labour Database (SABAL) carries five years of annual data so that trends and developments over time can be assessed.
- *As Time Goes By*, based on the 1992 General Social Survey on Time Use, explores the activity patterns of Canadians aged 15 and over. It portrays an average day, dividing it into paid work, unpaid work, educational activities, personal care and leisure. It also provides an overview of the changing roles, behaviours and time-related stresses over the average person's lifetime and documents differences in the time men and women spend on selected activities.

- Since 1985, the General Social Survey (GSS) has addressed a broad range of social issues covering a number of work-related characteristics. A brief description of labour and income-related variables examined by the GSS cycles is provided.

- The Analytical Studies Branch has released four more research papers. *Alternative Measures of the Average Duration of Unemployment* examines the usefulness of an alternative measure of average duration of unemployment and compares it with the standard measure currently released by the Labour Force Survey.

Advanced Technology Use in Canadian Manufacturing Establishments identifies selected factors that may account for differences in the use of technology. It draws on data from the Survey of Manufacturing Technology.

Technology Use, Training and Plant-Specific Knowledge in Manufacturing Establishments examines the relationship between technology use and the skill level of workers as the Canadian manufacturing sector increases its use of advanced technology.

The Intergenerational Income Mobility of Canadian Men assesses the effect of parents' income on the future income of their children. It differs from other studies in that it uses income data from administrative sources rather than from longitudinal surveys.

- The Canadian International Labour Network (CILN) will hold its inaugural conference, entitled "Labour market institutions and labour market outcomes: Cross-national perspectives," September 4 to 7, 1996 in Burlington, Ontario. Speakers will include labour economists, political scientists, industrial relations researchers and sociologists from Canada, the United States and seven other OECD countries. □

International survey on adult literacy

Catherine Hardwick

Industrialized countries are in transition. Information and communications technology, as well as globalization, are forcing economies into an ever growing reliance on well-educated and, perhaps most importantly, adaptable workers.

Literacy skills have never been more important to national economies. Many job skills are becoming obsolete and new ones are evolving, requiring well-trained and versatile workers. As the authors of a recently published report on literacy observe, literacy and lifelong training are inextricably linked (OECD and Statistics Canada, 1995). Yet until recently, most assessments of literacy skills have yielded little information that might help educators and employers to develop a responsive, competitive workforce for the global marketplace. The report, jointly released by Statistics Canada and the Organisation for Economic Co-operation and Development (OECD) in December 1995, provides data that should aid in planning effective, relevant training. It examines links between literacy levels and certain background variables (education, age, sex, immigration status, employment status, occupation, industry, income, and involvement in adult training) that seem to encourage some workers to reinforce and improve their position in the workforce while inhibiting others from doing so.

The publication describes the first International Adult Literacy Survey (IALS), conducted in autumn 1994. The landmark study measured the variation in basic literacy skills of adults across diverse

How the survey was conducted

The IALS, like two earlier national studies in North America (Kirsch et al, 1993; Statistics Canada, 1991), combined the techniques of household-based surveys with those of educational testing; that is, background questions determined demographic and other characteristics of the respondents, and test questions (also referred to as tasks) provided information about their levels of literacy. Unlike most standardized tests, however, this study used open-ended rather than multiple-choice questions.

To obtain meaningful comparable results for the survey, representative samples of the civilian, non-institutionalized population aged 16 to 65 were drawn from each of the seven participating countries (Canada, Germany, Sweden, the Netherlands, Poland, Switzerland and the United States). To satisfy national needs, some countries, among them Canada, also included older adults. Sample yields ranged from 2,062 (Germany) to 4,500 (Canada). Respondents were surveyed during the autumn of 1994.

A 20-minute background interview provided a means for exploring how literacy is connected to social, educational, economic and other variables and for seeing how these relationships are similar across cultures. In cases where respondents did not speak the official language, an interpreter helped provide the required information.

Respondents were tested in the official language(s) of their country; they were given a choice of using English or French in Canada, and were questioned in French or German in Switzerland, according to the dominant language of the canton in which the interview was conducted. Statis-

tics Canada's experience with bilingual questionnaires proved helpful in the design of this multilingual project. Respondents whose poor grasp of the official language prevented them from completing the test were still included, as the objective of the survey was to determine literacy levels in that language. Their omission would otherwise have distorted the responses and possibly over-represented the literacy profile of a country.

Each participant attempted a set of tasks, having first answered a core booklet to determine whether he or she could proceed with the test. Only those who correctly answered at least 2 of the 6 core questions (some 93% of respondents) were given the full test, which consisted of three sections, and took about 45 minutes to complete. The 15 test questions within each section became progressively more difficult.

In order to guard against cultural bias in the survey, a mathematical technique was employed to select only those tasks shown to be free of such bias. Some 114 tasks of the 175 constructed proved valid across cultures and useful for the main assessment. Of all test items used (for example, labels on medicine bottles, newspaper advertisements, bus schedules, weather charts) about half were drawn from outside North America.

Participating country study teams screened and coded the data, which were then tabulated and scaled by Educational Testing Service of the United States.

For further information about the survey, contact Jean Pignal at (613) 951-3317.

languages and cultures. In addition to developing scales to permit useful comparisons of literacy performance, the study produced

findings that should assist in the construction of statistical models for further research (see *How the survey was conducted*).

Catherine Hardwick is with the Labour and Household Surveys Analysis Division. She can be reached at (613) 951-4340.

The survey involved the efforts of seven governments and three intergovernmental organizations. Both the European Union's statistical office, EUROSTAT, and the United Nations Educational, Scientific, and Cultural Organization (UNESCO) supported the OECD's international focus. In addition to Statistics Canada, Canadian collaborators were the National Literacy Secretariat and Human Resources Development Canada.

This note outlines the aims and methodology of the new survey and introduces the next article in this issue, "The marginally literate workforce." It also provides a snapshot of scores for the general population tested in the three countries – Canada, the United States and Germany – whose workforces are compared in that article.

A new measure of literacy

The IALS discarded the popular notion of literacy as a single measurement or standard of reading ability, arguing that it was, rather, "a relative concept that can be given meaning only in relation to the demands of the economy and society." Recognizing the complexity of industrial societies and the need to view literacy as a broad set of skills used in a wide range of settings, the survey adopted the following definition:

Using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential.

Building on national surveys conducted in Canada and the United States, as well as recent research and methodology in literacy assessment,¹ the IALS experts devised three domains (or scales) in which to assess a common set of skills for various tasks (questions that do not offer a choice of possible answers, but

require a careful reading of the material from which answers must be derived or calculated). They tested people's ability to understand and use increasingly complex information from such items as product labels and owners' manuals (prose literacy); job applications and transportation schedules (document literacy); weather charts and interest tables (quantitative literacy) (Table 1).

The difficulty of prose tasks varied according to the amount of information to be processed, the extent to which information in the question was obviously related to material in the text, the amount and location of information in the text that seemed plausible but did not fully answer the question (called "distractors"), and the length and density of the text.

Success in processing documents appeared to depend at least in part on the ability to locate information in a variety of displays, and to use this information in a number of ways. The survey's authors acknowledge that some procedural knowledge (general familiarity with applications or order forms, for example) was sometimes required.

The difficulty of quantitative tasks depended on the type and number of arithmetic operations needed to perform the task successfully (calculators were not allowed), the extent to which numbers were embedded (that is, scattered throughout the document), and the extent to which an inference had to be made to identify the type of operation required.

The three domains' five corresponding levels of mastery allowed comparison of literacy profiles across countries and cultures, as well as within subgroups. This framework should provide a useful basis for further testing.

How did they do?

Generally, for all three scales, proportions of high and low scores for German adults were smaller than those of their North American counterparts; conversely, their representation in the mid-level range was greater, perhaps a reflection of an education system requiring higher levels of literacy for trades and craft workers than is usually the case in Canada and the United States.

The report's authors caution against the temptation to rank countries as if they were competitors in a horse race. A simple ranking of the seven nations means little, although the overall scores do point roughly to each country's relative advantage in the global marketplace. Where results are similar, however, interpretation becomes more difficult. Of more importance for each nation is the distribution of the various literacy levels within its own population. With this caveat in mind, test scores for the general adult populations of Canada, the United States and Germany are given below.

Many have trouble with complex questions

The tasks in Level 1 for each of the two text-based domains (prose and document) required the respondent simply to match information solicited in each question to the appropriate portion of the material supplied. In Canada, almost 17% of the general adult population performed only at this low level of prose literacy; some 18% fell into this category for document literacy. The United States reported roughly 21% and 24% (Chart).

Quantitative tasks asked participants to perform a single, fairly simple operation using numbers provided in the exercise. In both Canada and the United States,

Table 1
Examples of tasks for each literacy scale, at increasing levels of difficulty

Level	Prose	Document	Quantitative
1	Use the instructions on the bottle to identify the maximum duration recommended for taking aspirin.	Identify the percentage of Greek teachers who are women by looking at a simple pictorial graph.	Fill in the figure on the last line of an order form, 'Total with Handling, by adding the ticket price of \$50 to a handling charge of \$2.
2	Identify a short piece of information about the characteristics of a garden plant, from a written article.	Identify the year in which the fewest Dutch people were injured by fireworks, when presented with two simple graphs.	Work out how many degrees warmer today's forecast high temperature is in Bangkok than in Seoul, using a table accompanying a weather chart.
3	State which of a set of four movie reviews was the least favourable.	Identify the time of the last bus on a Saturday night, using a bus schedule.	Work out how much more energy Canada produces than it consumes, by comparing figures on two bar charts.
4	Answer a brief question on how to conduct a job interview, requiring the reader to read a pamphlet on recruitment interviews and integrate two pieces of information into a single statement.	Summarize how the percentages of oil used for different purposes changed over a specified period, by comparing two pie charts.	Calculate the final value of a \$100 investment at a rate of 6 percent for 10 years, using a compound interest table.
5	Use an announcement from a personnel department to answer a question that uses different phrasing from that used in the text.	Identify the average advertised price for the best-rated basic clock radio in a consumer survey, requiring the assimilation of several pieces of information.	Use information on a table of nutritional analysis to calculate the percentage of calories in a Big Mac® that comes from total fat.

Source: *International Adult Literacy Survey (Technical note no. 4), 1994*

scores for quantitative tasks were identical to the prose literacy performances.

In marked contrast, Germany had fewer adults with Level 1 literacy in all three domains (14%, 9% and under 7%).

Prose tasks at Level 2 often asked the reader to select one or more items from several distracting bits of information in the text. Document questions also required some filtering of information. Quantitative tasks typically required a single arithmetic operation (usually addition or subtraction) using numbers easily located in the question.

One-quarter of the North American population achieved Level 2 in prose and document literacy. Roughly one-third of Germans

reached this level on comparable tests. Around 25% of adults in all three countries registered Level 2 scores on the quantitative questions.

As levels progressed, text-based questions became increasingly complex, often asking readers to integrate or contrast items. Some tasks required them to identify several pieces of information located in different sentences or paragraphs. Quantitative operations were also more varied (with some multiplication and division tasks), and numbers needed for the calculations were frequently part of more complex displays.

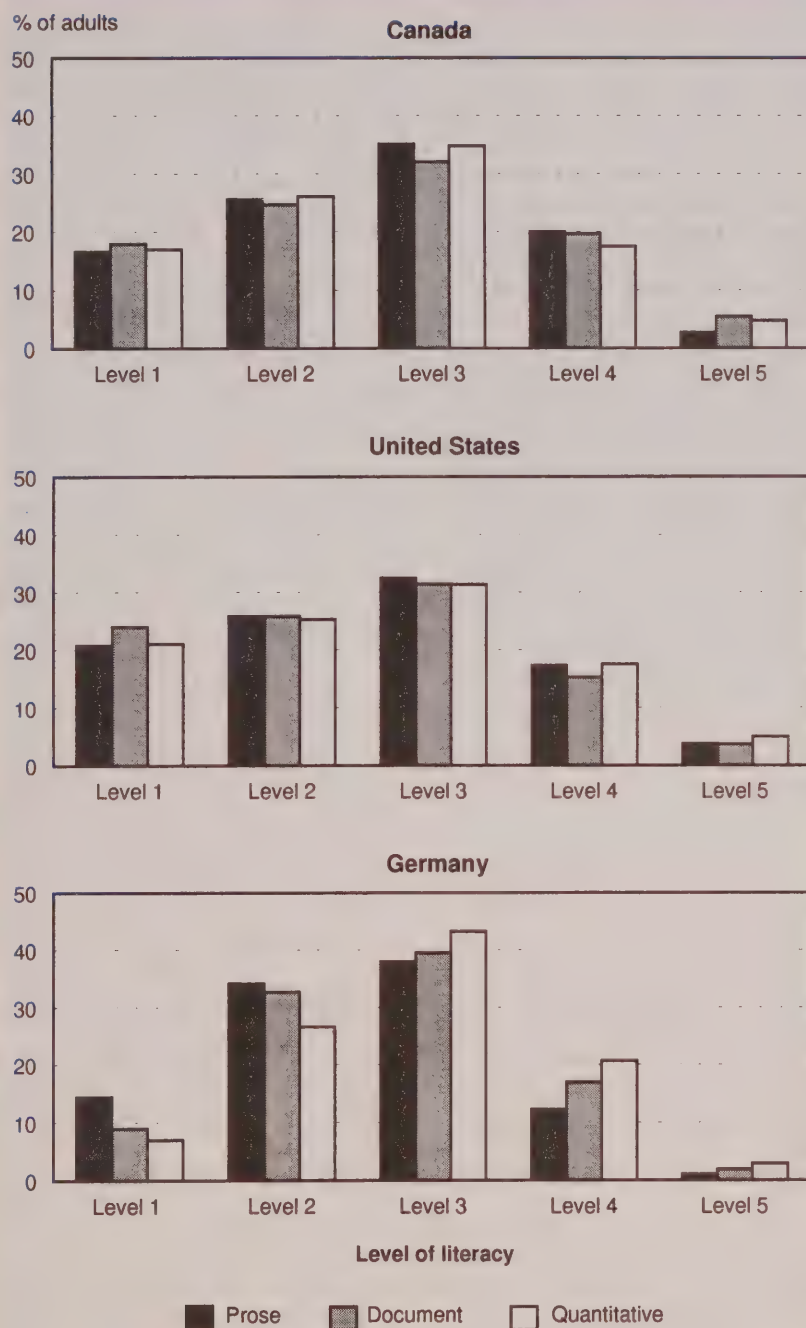
Roughly one-third of Canadian adults achieved Level 3 scores on all three scales. Comparable figures for Americans were slightly lower,

while those for the German population were higher.

Level 4 prose tasks often asked that information from relatively lengthy texts be integrated or contrasted. (Some studies have shown that tasks requiring the reader to contrast information are generally more difficult than those asking for similarities.) Requested information was sometimes more abstract than that required at lower-level tests. Readers often needed to make a series of matches and to infer from the text certain requirements not explicitly stated by the question. Quantitative questions called for a single operation where either the operation or the quantities were not easily determined.

One-fifth of Canadians reached Level 4 in both text-based domains;

Chart

Marginal * levels of literacy remain widespread.

Source: International Adult Literacy Survey, 1994

* Bottom two literacy levels (1 and 2) combined.

18% scored this well on quantitative tasks. American proportions for the first two domains were slightly lower (17% on prose tests, 15% on document tests), but identical on quantitative questions. Comparable results for the German survey were 12%, 17% and 21%.

Few reach the top

Some prose tasks at Level 5 sought information in dense text that contained a number of plausible distractors. Specialized knowledge and inferences were also called for in a few questions. Similar requirements existed for document tasks. Most quantitative questions at this level asked for multiple operations using embedded numbers, and readers sometimes needed to rely on background knowledge to determine the quantities or operations required. (A Level 5 quantitative task is reproduced in Table 2.)

Nearly 3% of Canadians achieved Level 5 for prose literacy, and around 5% did for both document and quantitative questions. American figures were slightly higher for prose and quantitative, but lower for document tasks; German proportions were slightly lower in all three domains.

Other observations

The report concludes that the mental processes used in reading are independent of language and culture. Furthermore, its authors argue that tested abilities are closely linked to the use of literacy skills in daily life; that practice makes perfect, so to speak. For example, occupations requiring high levels of literacy for entry tend to provide practice in using written material, which sustains those levels. Some people, however, may make little effort to reinforce reading skills obtained through higher education,

Table 2
Example of a Level 5 quantitative literacy task (nutritional analysis)

	Serving size	Calories	Protein (g)	Carbohydrates (g)	Total fat (g)	Saturated fat (g)	Monounsaturated fat (g)	Polysaturated fat (g)	Cholesterol (mg)	Sodium (mg)		
Sandwiches												
Hamburger	102 g	255	12	30	9	5	1	3	37	490		
Cheeseburger	116 g	305	15	30	13	7	1	5	50	725		
Quarter Pounder®	166 g	410	23	34	20	11	1	8	85	645		
Quarter Pounder® w/Cheese	194 g	510	28	34	28	16	1	11	115	1110		
McLean Deluxe™	206 g	320	22	35	10	5	1	4	60	670		
McLean Deluxe™ w/Cheese	219 g	370	24	35	14	8	1	5	75	890		
Big Mac®	215 g	500	25	42	26	16	1	9	100	890		
Filet-O-Fish®	141 g	370	14	38	18	8	6	4	50	730		
McChicken®	187 g	415	19	39	19	9	7	4	50	830		
French Fries												
Small French Fries	68 g	220	3	26	12	8	1	2.5	0	110		
Medium French Fries	97 g	320	4	36	17	12	1.5	3.5	0	150		
Large French Fries	122 g	400	6	46	22	15	2	5	0	200		
Salads												
Chef Salad	265 g	170	17	8	9	4	1	4	111	400		
Garden Salad	189 g	50	4	6	2	1	0.4	0.6	65	70		
Chunky Chicken Salad	255 g	150	25	7	4	2	1	1	78	230		
Side Salad	106 g	30	2	4	1	0.5	0.2	0.3	33	35		
Croutons	11 g	50	1	7	2	1.3	0.1	0.5	0	140		
Bacon Bits	3 g	15	1	0	1	0.3	0.2	0.5	1	95		
Soft Drinks												
	Coca-Cola Classic®				diet Coke®				Sprite®			
	Small	Medium	Large	Jumbo	Small	Medium	Large	Jumbo	Small	Medium	Large	Jumbo
Calories	140	190	260	380	1	1	2	3	140	190	260	380
Carbohydrates (g)	38	50	70	101	0.3	0.4	0.5	0.6	36	48	66	96
Sodium (mg)	15	20	25	40	30	40	60	80	15	20	25	40

Source: International Adult Literacy Survey, 1994

Note: Readers were asked to calculate the percentage of calories in a Big Mac® coming from total fat. (They were told that a gram of fat had 9 calories.)²

while others may work independently to acquire and maintain reasonable levels of literacy without the reinforcement of a reading-intensive occupation. So, although positive correlations exist between literacy and education, income, and occupation, some surprising results exist, demonstrating that it is pos-

sible to overcome relative disadvantages or, conversely, to lose abilities assumed to be permanent.

This finding invites an assessment of individual practices (reading habits, use of libraries), as well as workplace policies (fostering an atmosphere that encourages

improvement of literacy skills) and government initiatives (sponsoring further study, remedial training or skills upgrading). Of particular concern is the large percentage of adults who may not acknowledge their performance as inadequate and therefore do not recognize it as a barrier to advancement in the

workplace and community (specifically, those who have Level 2 literacy, roughly 25% of Canadians). Because there will be relatively few young workers to replace the more numerous baby boomers in the coming years, employers will need to train, or retrain, persons already in the labour force, rather than continue to look to the educational system to fill all of their needs. Therefore, the workforce in place now may find itself dealing with dramatic changes in the next few years for which it may not be prepared. Literacy skills are a core indicator of the calibre of human capital currently available in different societies.

The authors of the report suggest that questions could be administered to samples of workers in individual firms over time. They also speculate that, eventually, micro-level findings on relationships between workers' skills, job performance and company health may lead to policies, programs and workplace practices that will yield broad returns for the economies of participating countries.

Future use of the survey

The survey technology used in the International Adult Literacy Survey is a novel and useful approach that has attracted the interest of several other countries. The European Union may commission another European data collection and the United Kingdom, Australia and New Zealand are interested in obtaining comparable information. Follow-up international surveys are likely, possibly including data from countries outside the OECD.

To order the report on IALS

Literacy, Economy and Society: Results of the first International Adult Literacy Survey (Catalogue no. 89-545-XPE) is available for \$50 from any Statistics Canada Regional Reference Centre, or from Statistics Canada, Operations and Integration Division, Circulation Management, 120 Parkdale Avenue, Ottawa, Ontario K1A 0T6; fax (613) 951-1584 or call toll free 1 800 267-6677.

Notes

1 See the reference section provided in each chapter of the report (OECD and Statistics Canada, 1995). See also Montigny and Jones (1990).

2 Answer: 46.8%.

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The marginally literate workforce

Susan Crompton

The pressure to develop a highly literate workforce has intensified in recent years as the skills demanded by employers become increasingly complex. However, employers tend to enhance the skills of those who are already highly literate and leave behind a substantial proportion of workers who are only marginally literate. So although the economy demands increasing numbers of highly skilled workers, present practices may well be limiting economic growth and productivity. Improving the abilities of adults with poor literacy skills may present the biggest human resource challenge of the next decade.

This article briefly profiles the significant minority of Canadian workers who possess only Level 1 or 2 literacy skills, as determined by the International Adult Literacy Survey (IALS) (see *Data source and definitions*). Although no one country is "better" than another in an absolute sense — they differ in their demographic composition, educational organization, social institutions and employment opportunities — useful questions may be raised by studying the literacy skills of foreign workforces. Therefore, this article also looks at workers in the United States, our largest trading partner and primary competitor, and Germany, the principal economic power in Europe.

What does marginal literacy mean for workers?

Workers with only Level 1 or 2 literacy skills — workers "at risk" — have quite limited capabilities. In

practical terms, their general reading abilities (prose literacy) are restricted to such tasks as identifying dosage instructions on a medicine bottle (Level 1) or answering a simple question about plants based on a brief article about gardening (Level 2). However, they have difficulty summarizing instructions on making sure a bicycle seat is in the proper position for the rider; or reading four movie reviews and identifying which movie was considered the worst, in the absence of a ratings device such as points or stars. These are Level 3 prose tasks.

Workers at risk also exhibit weak skills in working with the types of forms, charts, tables and text they might encounter in the workplace (document literacy). From a chart showing the percentage of teachers who are female in different European countries, they are able to identify the percentage of teachers in Greece who are women (Level 1); or from two charts containing data about fireworks, they are able to select the year in which the fewest people were injured in fireworks accidents (Level 2). However, they are unlikely to succeed at Level 3 document literacy tasks, such as using a bus schedule to find out what time the last bus leaves a particular stop on Saturday night.

Workers with marginal literacy skills also have a limited ability to work with numbers (quantitative literacy). They can complete an order form when the numbers to be added together are already provided (Level 1), or calculate the difference between the maximum daytime temperatures in Bangkok and Seoul using information printed in a table in the newspaper (Level 2). They are not usually able to successfully complete quantita-

tive tasks of Level 3 difficulty; for example, they are unable to compare two bar charts — one showing the amount of energy produced by selected countries, the other, the amount of energy consumed — and calculate how much more energy Canada produced than it consumed, or estimate the total amount of energy that was consumed by Canada, the United States and Mexico combined.

Compounding the difficulties marginally literate workers likely face in remaining employable are their attitudes toward literacy. They read less, and watch television more, than people with high-level literacy skills, thereby risking further deterioration of their abilities. Moreover, they do not recognize (or acknowledge) that they are at risk: about half the workers with Level 1 abilities, and over three-quarters of those with Level 2, rate their reading, writing and numeracy skills as good to excellent. Given this belief, it is not surprising that the great majority of marginally literate adults do not consider their job opportunities to be limited by their poor literacy skills.¹

Over one-third of Canadian workers have weak literacy skills

Over one-third of the workers in Canada (36%) possess marginal literacy skills. This proportion is consistent across all three types of literacy — prose, document and quantitative. Although most workers "at risk" function at Level 2 literacy, about one in three operate at Level 1 (Chart A).

In the United States, over 40% of workers have only Level 1 or 2 skills, regardless of the type of lit-

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Data source and definitions

The data in this article are drawn from *Literacy, Economy and Society: A Report on the first International Adult Literacy Survey*, jointly published by the Organisation for Economic Co-operation and Development and Statistics Canada. The international classification conventions used in that publication – for example, industry and occupation classifications – are also used in this article. See “International survey on adult literacy” in this issue for more information about the survey, including its methodology and testing procedures.

Literacy: three types of literacy were measured by the IALS – prose, document and quantitative. All three measure the information-processing skills of the reader – the ability to locate, integrate and generate information – but the emphasis is somewhat different for each type. Prose skills involve the use of text; document, the use of text, charts, graphs, maps or schedules; and quantitative, the use of arithmetic operations when the necessary information is embedded in material such as text, order forms, tables, charts, and so on. After being tested, readers were classified into one of five levels for each literacy type based on their results, with Level 1 being the lowest and Level 5, the highest.

Marginal literacy: refers to Level 1 or Level 2 on the IALS literacy tests, whether prose, document or quantitative. Readers at Level 1 literacy have serious difficulty dealing with many printed materials and most likely identify themselves as people who have trouble reading. Readers at Level 2 have weak test scores, but do not generally report having reading problems. Synonyms for *marginal literacy* used in this article include *weak*, *limited*, *low-level*, and *at risk*.

Major occupational groups: this article uses the International Standard Classification of Occupations (ISCO). The following list shows the ISCO categories used here, followed by their approximate equivalents in the Canadian Standard Occupational Classification:

- managers ≈ managerial and administrative occupations
- professionals ≈ occupations in the natural sciences, engineering and mathematics; social sciences; religion; teaching; some medicine and health (for example, physicians, dentists, registered nurses); artistic, literary and recreational occupations
- technicians ≈ some occupations in medicine and health (for example, physiotherapists, nutritionists, dental hygienists); some sales (for example, insurance and real estate agents, sales supervisors)
- clerks ≈ clerical occupations
- services workers and sales workers ≈ some sales (for example, sales clerks); service occupations
- craft workers ≈ some occupations in machining; fabricating, assembling and repairing; construction; some other crafts
- machine operators and assemblers ≈ some occupations in processing; transport equipment operating; material handling; machining; fabricating, assembling and repairing; construction; some other crafts
- agricultural and primary workers ≈ farming, horticultural, and animal husbandry; fishing and trapping; forestry and logging; unclassified

Blue-collar occupations: craft workers; machine operators and assemblers; agricultural and primary workers.

Major industrial groups: this article uses the International Standard Industrial Classification (ISIC). The following list shows the ISIC categories used here, followed by their approximate equivalents in the Canadian Standard Industrial Classification:

- agriculture ≈ agriculture; logging and forestry; fishing and trapping
- mining and quarrying ≈ mining, quarrying and oil wells
- manufacturing ≈ manufacturing
- electricity, gas and water ≈ other utilities
- construction ≈ construction
- transport, storage and communication ≈ transportation and storage; communications
- trade and hospitality ≈ wholesale and retail trade; accommodation, food and beverage services
- financing, insurance, real estate and business services ≈ finance and insurance; real estate operators and insurance agents; business services
- community, social and personal services ≈ educational services; health and social services; government services; other service industries.

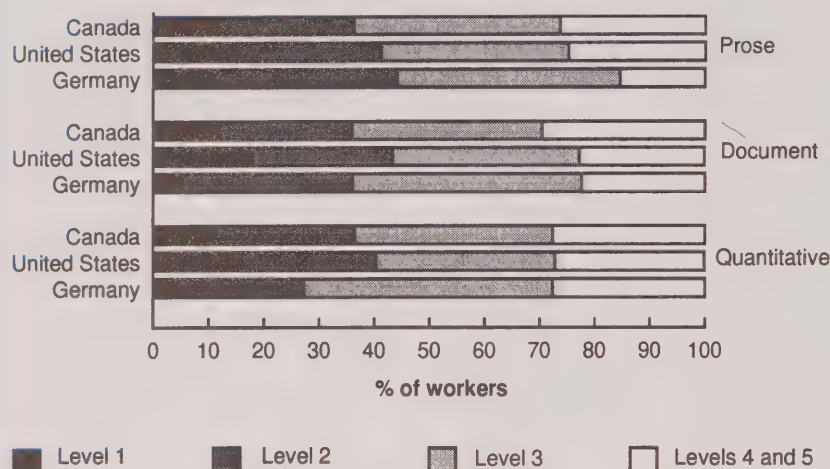
The data on industry and occupation are highly aggregated, which may account for a few surprising findings. For example, in Table 2 the managers/professionals classification is a very broad category that includes supervisors, foremen, store managers and administrative assistants as well as doctors, engineers and high-level managers. This heterogeneity offers one reason why about one in five management/professional workers are reported to have marginal literacy.

eracy being measured. Although this proportion is slightly higher than in Canada, the split between Levels 1 and 2 is similar; that is, a little more than one-third of American workers with marginal literacy function at the lowest level.

Germany presents a contrast to both North American countries.² Proportionally more German workers have marginal prose skills (44%), while the same percentage as Canadians have limited document literacy (36%); however, pro-

portionally fewer have weak quantitative skills (27%). More importantly, German workers are much less likely than Canadians to test at the minimal Level 1 for document and quantitative literacy.

Chart A
Over one-third of Canadian workers have only marginal * literacy skills.



Source: International Adult Literacy Survey, 1994

* The bottom two literacy levels (1 and 2) combined.

have marginal prose and document skills, while about the same percentage have limited quantitative skills. In Germany, students make up only 10% of part-time workers and do not appear to have much effect on the literacy levels. Part-timers are just as likely as full-time workers to test at Level 1 or 2 for document literacy, but they are more likely to have limited quantitative skills, and their prose abilities are better.

Half of blue-collar workers are weak readers

Different jobs demand different skills, and there is a discernible relationship between literacy and occupation (and hence between literacy and income). Surprisingly, almost one in five Canadians in management/professional occupations have only marginal skills – mainly Level 2. (The reason for this result may lie in the occupation

Full-time workers generally less literate

In Canada, full-time workers are more likely than part-time to have limited literacy skills: about 39% of full-timers possess limited prose literacy compared with 27% of part-timers. The gap begins to narrow with document literacy and almost disappears when quantitative skills are examined (Table 1). This erosion probably reflects the composition of the part-time workforce. About one-third are students, who have predictably high general skills (prose literacy). Their limited exposure to materials generally found in the workplace, such as payrolls, schedules and manuals, may account for their having fewer specific skills (document and quantitative literacy).

In the United States, where about one-third of part-time workers are also students, a larger percentage of full-time than part-time workers

Table 1
Distribution of full- and part-time workers across literacy levels, by country

	Level on prose scale				Level on document scale				Level on quantitative scale			
	1	2	3	4/5	1	2	3	4/5	1	2	3	4/5
%												
Canada												
All workers	12	25	38	26	12	24	35	30	11	25	36	28
Full-time	14	25	37	25	14	24	34	28	13	26	35	27
Part-time	9	18	41	32	8	23	35	34	11	25	41	23
United States												
All workers	15	26	34	25	18	26	34	23	16	25	33	27
Full-time	16	27	33	25	19	26	32	23	16	24	31	29
Part-time	14	22	41	23	16	22	42	19	17	24	43	17
Germany												
All workers	11	33	41	15	5	31	42	22	4	23	45	28
Full-time	12	34	39	16	6	31	42	22	5	23	45	28
Part-time	12	28	43	18	9	27	40	24	6	25	43	26

Source: International Adult Literacy Survey, 1994

Note: "All workers" refers to those employed at the time of the survey; "full-time" and "part-time" refer to anyone who worked in the previous 12 months.

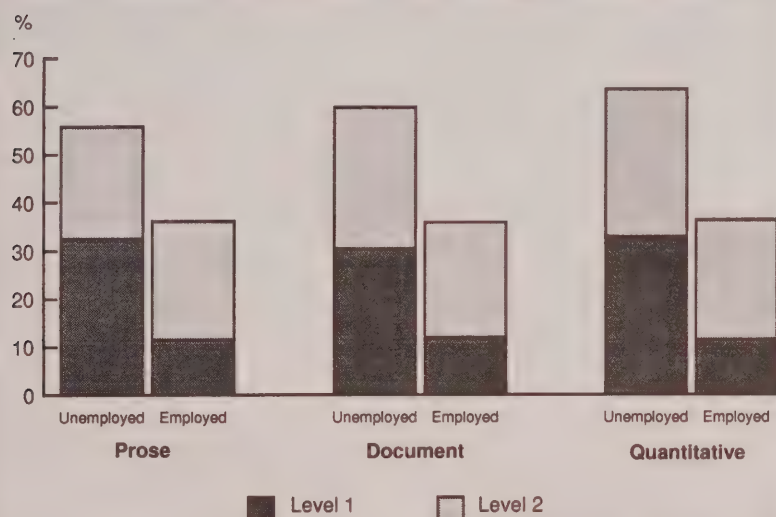
Majority of unemployed are marginally literate

Workers with poor literacy skills are particularly vulnerable to layoff and displacement, and once unemployed, they may find it exceedingly difficult to find new jobs. There is little demand for workers with weak skills, and the low-level literacy possessed by most unemployed people in Canada may be one factor underlying the current high levels of long-term unemployment.

Depending on the type of literacy being measured, between 56% and 64% of unemployed Canadians test at

Level 1 or 2 (Chart). These rates are much higher than those for working Canadians; furthermore, at least half of the marginally literate among the unemployed test at Level 1 for all three types of literacy. In the United States and Germany, the unemployed also have much weaker literacy skills than adults who are working. However, a smaller percentage of unemployed Germans than Canadians or Americans have only minimal Level 1 skills.

Unemployed Canadians are much more likely to have marginal * literacy skills.



Source: International Adult Literacy Survey, 1994

* The bottom two literacy levels (1 and 2) combined.

classification; see *Data source and definitions*.) The literacy profile of technicians reflects their more job-specific skills: 30% have limited prose abilities, but far fewer perform poorly on document (16%) and quantitative tasks (22%), presumably because they are more familiar with such items as technical manuals, diagrams and specifications (Table 2).

Many workers in the other occupational groups have limited literacy abilities that deteriorate as the content of the tasks becomes increasingly numerate. Depending on the type of literacy being measured, 34% to 40% of clerks and 40% to 46% of sales and service workers are marginally literate, although a clear majority function at Level 2. But more than half the

craft workers and machine operators and assemblers in Canada function at low-level literacy and the proportion testing at only Level 1 is very high: furthermore, they account for most marginally literate blue-collar workers on the prose literacy scale, and for almost half on the document scale.

In the United States, as in Canada, about one-fifth of managers and professional workers also have limited skills according to all three literacy measures, but American technicians are less likely to function at marginal levels, at least on the prose and quantitative scales. Workers in the remaining four major groups are more likely to have limited literacy than their Canadian counterparts.

In Germany, the proportion of managers and professional workers with only marginal literacy skills is similar to that in Canada, a departure from the observation that, overall, German workers have poorer prose, similar document and better quantitative skills. The usual pattern surfaces again among workers in other occupations: almost half the workers in clerical and sales and service jobs have limited prose abilities, but less than one-third have marginal quantitative skills. Blue-collar workers appear, at first glance, to be less literate than their Canadian counterparts. Among craft workers, one-half have marginal prose skills and about one-quarter have limited quantitative abilities; among machine operators and assemblers, three-quarters have weak prose and about one-half, weak quantitative skills. But although a large percentage of German blue-collar workers are at risk, most of them possess Level 2 skills. The same cannot be said of their North American counterparts, of whom a significant plurality (and, in some cases, the majority) function at Level 1.

Table 2
Distribution of workers aged 16-65 across literacy levels, by occupation and country

	Level on prose scale				Level on document scale				Level on quantitative scale			
	1	2	3	4/5	1	2	3	4/5	1	2	3	4/5
%												
Canada												
Managers/professionals	3	17	37	43	3	15	32	50	2	15	36	46
Technicians	4	26	26	43	4	12	59	26	4	18	33	45
Clerks	6	28	51	15	8	27	37	28	5	35	41	20
Sales and service	11	29	35	25	16	30	29	25	15	31	41	13
Crafts	30	23	33	14	25	31	29	16	22	35	29	14
Machine operators and assemblers	29	20	40	11	28	31	26	15	29	29	34	9
Agricultural and primary	19	28	40	14	18	31	33	18	21	25	36	18
United States												
Managers/professionals	4	16	37	43	5	15	41	39	4	14	37	46
Technicians	2	16	47	34	4	17	49	30	2	11	44	43
Clerks	7	30	42	21	11	34	33	22	11	32	36	22
Sales and service	24	26	32	17	27	25	33	15	25	29	29	17
Crafts	29	38	26	7	30	38	25	7	29	32	29	11
Machine operators and assemblers	29	37	28	6	35	32	26	7	30	31	28	11
Agricultural and primary	32	21	25	23	36	12	27	24	34	10	43	14
Germany												
Managers/professionals	5	19	44	32	2	20	36	42	2	14	37	47
Technicians	4	23	49	24	2	14	54	30	2	15	52	31
Clerks	10	39	39	13	5	31	44	19	5	26	46	23
Sales and service	10	37	36	17	6	37	39	18	5	25	45	25
Crafts	14	36	43	7	7	33	47	14	3	24	48	25
Machine operators and assemblers	22	53	20	6	12	48	32	8	11	41	36	12
Agricultural and primary	37	31	28	4	19	39	29	13	18	27	39	17

Source: International Adult Literacy Survey, 1994

Note: Data refer to anyone who worked in the previous 12 months. For a complete description of occupations refer to Data source and definitions.

Workers in older industries more likely at risk

Much recent commentary has emphasized that the changing industrial economies demand the development of greater skills, and the IALS data would seem to support this assessment. A high proportion of workers with the highest literacy levels are found in industries where employment has grown in the last 20 years (that is, newer industries), whereas industries where employment has declined (older industries) are characterized by workers who are marginally literate.

In four of the six major industrial groups, 41% to 52% of Cana-

dian workers have marginal literacy skills, depending on the type of literacy being measured; the results on the quantitative scale are particularly weak. Only in financing, insurance, real estate and business services, and community, social and personal services do fewer than 30% of workers possess limited abilities on all three scales (Table 3).

In the United States, close to half the workers have only Level 1 or 2 skills in three industry groups: manufacturing; construction/transport, storage and communication; and trade and hospitality. Meanwhile, about one-third of workers in financing, insurance, real estate and business services, and commu-

nity, social and personal service industries are marginally literate.

In Germany as in North America, workers at risk are concentrated in the older industries. But while German workers are more likely than Canadians to have weak prose skills, they are much less likely to have limited quantitative skills. In addition, the percentage of workers in German industries who function at only Level 1 literacy is quite small compared with Canada and the United States.

Given that older Canadians are more likely to have lower-level literacy skills,³ it seems reasonable to suggest that differences in literacy levels among the major industrial

Table 3
Distribution of workers aged 16-65 across literacy levels, by industry and country

	Level on prose scale				Level on document scale				Level on quantitative scale			
	1	2	3	4/5	1	2	3	4/5	1	2	3	4/5
%												
Canada												
Agriculture/mining and quarrying	16	25	44	15	17	28	33	23	17	28	38	17
Manufacturing	25	17	43	15	22	24	31	23	20	28	30	21
Construction/transport, storage and communication	22	24	33	21	20	32	27	21	22	27	32	19
Trade and hospitality	12	31	37	20	14	29	32	25	13	34	38	16
Financing, insurance, real estate and business services	2	26	47	25	3	16	34	47	2	20	36	43
Community, social and personal services	7	21	33	39	8	20	40	32	8	20	40	33
United States												
Agriculture/mining and quarrying	21	21	27	31	22	20	26	32	20	6	42	31
Manufacturing	22	32	30	16	25	28	31	16	20	27	31	23
Construction/transport, storage and communication	18	27	38	17	20	30	31	19	17	29	31	24
Trade and hospitality	19	32	34	16	23	28	32	18	21	30	31	19
Financing, insurance, real estate and business services	11	26	35	28	12	25	36	27	13	22	37	28
Community, social and personal services	12	19	36	33	14	21	38	27	14	21	34	32
Germany												
Agriculture/mining and quarrying	31	38	15	16	9	49	19	24	4	22	45	29
Manufacturing	12	38	36	14	6	29	44	22	4	28	45	24
Construction/transport, storage and communication	18	37	34	11	8	41	33	19	7	28	36	29
Trade and hospitality	14	36	38	13	7	33	39	21	7	25	43	26
Financing, insurance, real estate and business services	6	27	54	13	6	20	53	22	3	12	57	27
Community, social and personal services	7	26	45	23	5	24	45	27	4	19	45	32

Source: International Adult Literacy Survey, 1994

Note: Data refer to anyone who worked in the previous 12 months. For a complete description of industries refer to Data source and definitions.

groups are due to the age composition of their respective workforces. But this does not appear to be the case. In Canada, almost two-thirds (65%) of community, social and personal service workers are under 45, compared with 77% of agricultural and 81% of manufacturing workers. Almost half (45%) of the people employed in financing, insurance, real estate and business services are even younger (under 35), as are 60% of those in sales. Therefore, the higher concentration of workers with low-level literacy

skills in the older industries cannot be attributed primarily to a simple difference in age composition. Other factors may play a more important role; for example, the availability of employer-sponsored training opportunities;⁴ an industry's proportion of part-time jobs⁵ (held by generally more literate workers); and an occupation's need for highly skilled workers.⁶ These factors are more prevalent in service industries or in certain occupations in industries where employment is growing.

The IALS results also suggest that the organization of work affects literacy. The survey findings indicate that literacy skills must be used regularly if they are to be maintained or improved. Since most jobs in industries such as manufacturing and construction tend to emphasize manual skills, most workers in these industries may have low-level abilities in part because their work does not encourage the maintenance or development of literacy skills.

Marginally literate workers read less on the job

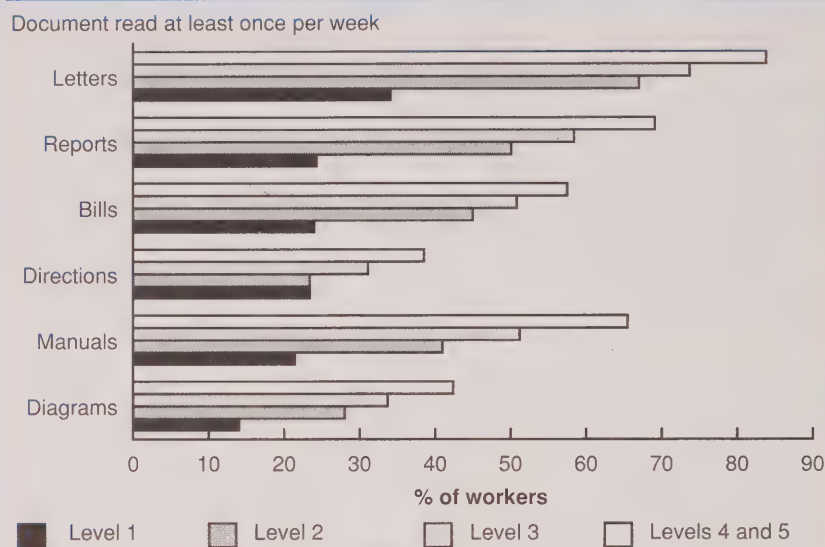
This suggestion is supported by the fact that workers with limited literacy read and write at work much less frequently than those with stronger skills. And even among workers at risk, there is a considerable difference in the amount of reading done. In Canada, those workers with minimal abilities do the least reading; for example, fewer than one-quarter of workers testing at Level 1 on the document scale report reading text such as directions, manuals or reports at least once a week. Workers functioning at Level 2 read on the job more frequently, though not as often as highly literate workers (Chart B).

Interestingly, American workers at all literacy levels appear to read more frequently than Canadians. In spite of this, the reading frequency rates of workers at risk are still much lower than those of the highly literate. The disparity is even greater among marginally literate workers themselves, with Level 1 workers doing very little reading in the workplace, and Level 2 workers doing considerably more. In Germany as well, workers with limited abilities generally read less regularly than those with higher-level literacy; however, they are still required to read more frequently than their Canadian and American counterparts.

Summary

The results of the International Adult Literacy Survey appear to show that literacy and employment are closely interdependent. To obtain the skills required in the most desirable jobs, workers must first be highly literate; the challenges of the job then demand that workers remain highly literate, which enables them to learn new skills for yet more desirable jobs. Consequently, the marginally literate tend to be

Chart B
Canadian workers whose literacy skills are most limited * are less likely to read at work.



Source: International Adult Literacy Survey, 1994

* Level 1 document literacy.

concentrated in lower-level occupations in industries where employment is declining.

This interaction between low-level literacy and employment is common to all three countries described in this study. However, Canadian workers are less likely than American to have weak literacy skills. This is especially true in manufacturing; financing, insurance, real estate and business services; and community, social and personal services. Furthermore, a much higher proportion of U.S. workers function at minimal Level 1 literacy in most major industries, especially in the service-producing sector. In Germany, two findings stand out very clearly in contrast to the Canadian (and American) experience: the consistently good results posted by German workers in terms of quantitative literacy, and the much lower percentage of German workers with minimal Level 1 skills. □

Notes

1 Among Canadian adults (both workers and non-workers), about two-thirds of those with Level 1 and well over three-quarters of those with Level 2 skills do not believe that their job opportunities are hampered by their literacy skills.

2 The IALS was conducted after German unification. The literacy results for Poland were the poorest of all participants in the survey – Canada, United States, Germany, the Netherlands, Poland, Switzerland and Sweden – so if Poland is reasonably representative of former East Bloc countries, the results for Germany probably reflect the weaker literacy skills of workers in the former East Germany.

3 Just over half (51%) of Canadians aged 46 to 55 and almost two-thirds (64%) of those aged 56 to 65 tested at Level 1 or 2 literacy. Considerably smaller percentages of younger Canadians have marginal literacy skills: 36% of those aged 16 to 25, 41% of those 26 to 35, and 32% of those 36 to 45.

4 About 14% of Canadian workers received training from their employers in 1990. The incidence of training in most of the service-producing industries was higher than the

national average; for example, over one in five workers in the finance, insurance and real estate industries, as well as in the utility industries and public administration, were provided training (Crompton, 1992).

5 Part-time jobs are most common in the service industries and agriculture (all above the national average of 23% in 1993), and least common in the manufacturing, other primary and transportation industries (Pold, 1994).

6 Employment projections from the Organisation for Economic Co-operation and Development (OECD) suggest that the demand for moderately and highly skilled professional, technical and administrative workers will accelerate, while that for low-skilled workers will fall sharply (OECD and Statistics Canada, 1995:22).

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Pension fact or fiction?

Hubert Frenken

There is a perception in the Canadian pension and benefits industry that there have been widespread conversions from defined benefit registered pension plans (RPPs) to defined contribution arrangements, particularly money purchase RPPs and group RRSPs. If this is the case, to what extent have workers been affected? Specifically, has there been an extensive reduction in the number of jobs providing a defined benefit RPP in recent years? This study suggests otherwise. (For definitions of defined benefit and defined contribution plans see *About the data*.)

Changes in the proportion of jobs with high quality (defined benefit) pension plans¹ would have significance beyond the pension and benefits industry. It would influence trends in Canadian labour markets generally. For example, some analysts consider the presence (or absence) of a high quality RPP to be an indication of a "good" (or "bad") job. Stability of the defined benefit RPP coverage rate would indicate that good jobs are not disappearing at the rate some commentators have suggested.

Why switch?

Numerous articles have highlighted employers' (and to some extent employees') growing disaffection with defined benefit arrangements and some have provided anecdotal evidence of conversions by employers to defined contribution plans, including group RRSPs, profit sharing plans and other savings vehicles such as employee stock ownership plans. Among the reasons given for such

About the data

The data are taken from a variety of sources, but mainly the Labour Force Survey (LFS) and Labour Division's Pension Plans in Canada (PPIC) database. The latter covers all employer-sponsored registered pension plans (RPPs) in Canada, their membership and characteristics. It is updated annually with information obtained from the federal/provincial pension supervisory authorities.

Since the effective date of most new plans and of amendments is January 1 and since plan terminations most often occur on December 31, the annual data reflect the information at January 1. Each year's membership count, however, is taken at December 31 or the nearest fiscal year-end, although in some cases all persons who were members at any time during the year, or who were members on temporary layoff at year-end, are included. Because of these inclusions, LFS data were averaged over the preceding 12 months. Thus, for example, for 1994 coverage rates the January 1994 PPIC data are compared with the 1993 LFS average of paid workers. (Paid workers only are included, since self-employed owner-operators of unincorporated businesses, the unemployed and unpaid workers are unable to participate in an RPP.)

Among the PPIC characteristics are the formulas used to define the retirement benefits of the members. There are two basic types of formula: defined benefit and defined contribution (also called money purchase). Under

the former, the member's pension is specifically defined, most frequently as a percentage of earnings. Employer contributions are made as required to maintain the actuarial soundness of the plan. The latter has no specific benefit formula, but defines the employer contributions (and those of the employee, if required). Contributions accumulate, earn investment income and provide a pension at retirement. A growing number of employers have set up hybrid plans, which allow the employee to select either a defined benefit or a defined contribution pension. Since most members prefer defined benefits, these plans have been coded as defined benefit arrangements.

Defined contribution RPPs, group RRSPs and other savings plans sponsored by employers, both registered and non-registered, are often considered as one and the same by the pensions industry, but only the first type is included in the PPIC database.

In this study, the public sector includes all employees of the three levels of government — federal, provincial/territorial and municipal — as well as employees of enterprises, agencies, boards and commissions operated or sponsored by these governments; and workers in public hospitals and educational institutions, excluding universities. The private sector forms the balance. For further information on the PPIC database, contact the Pensions Section of the Labour Division at (613) 951-4034.

changes are the extensive legislative requirements and additional administrative costs of defined benefit plans, as well as the forfeiture of retirement savings by workers frequently switching jobs in a highly mobile workforce.²

Some limited data obtained by Statistics Canada from the pension supervisory authorities in New-

foundland, Nova Scotia, Manitoba, Saskatchewan, Alberta and British Columbia show that for 900 of 1,650 recently terminated RPPs in these jurisdictions a reason for termination was provided. Of these 900 plans, 22% (covering 61% of the 26,900 members concerned) were replaced by a new RPP (most likely a defined contribution plan)

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or a group RRSP.³ Similarly, a recent study for the Society of Actuaries and the Canadian Institute of Actuaries, using data extracted from the files of the Pension Commission of Ontario, found that 35% of the 127 plans terminated between 1988 and 1993 (covering 37% of the 23,100 members affected) had been replaced by a defined contribution RPP or a group RRSP.⁴

Increased defined contribution coverage

While these data show that significant conversions from defined benefit to defined contribution plans have taken place, there is also ample evidence of considerable growth in the number of workers covered by some types of defined contribution arrangements.⁵ For example, membership in defined contribution RPPs grew by 56% from 1986 to 1994. However, even though these plans are more numerous, they have always covered a relatively small number of workers. In 1994, 55% of the 15,750 RPPs in effect were defined contribution, but they covered only 10% of the 5.2 million RPP members. This low rate is to some extent influenced by the public sector, where defined contribution plans are virtually non-existent. But even in the private sector only 15% (421,000) of all 1994 RPP members had a defined contribution formula and they represented only 4.6% of paid workers in that sector. (For definitions of public and private sectors see *About the data*.)

While the total number of workers covered by group RRSPs is not known, there are indications that it has grown considerably over the last 10 years. According to the Canadian Life and Health Insurance Association (CLHIA), in 1985 life insurance companies administered the assets for 7,500 group RRSPs with 159,500 members. By 1994, the number of plans had increased to nearly 18,000, covering almost

710,000 individuals (CLHIA, 1995). Though it is not possible to determine the proportion of total group RRSP participation this 710,000 represents, membership in similar plans administered by other financial institutions, as well as those self-administered by employers, has surely grown in similar fashion.

The number of participants in other defined contribution arrangements appears to be much less significant. Deferred profit sharing plan participation, which has never been very large, amounted to roughly 350,000 individuals in 1993 (Statistics Canada, 1996) and, while there are no data on membership in non-registered employer-sponsored savings vehicles such as employee stock ownership plans, their coverage is likely not extensive, in part because they offer no tax assistance.

Little change in defined benefit coverage

Has the growth in defined contribution membership been at the expense of defined benefit coverage? The percentage of paid workers covered by defined benefit RPPs actually changed very little in recent years, from 40% in 1986 to 39% in 1994 (Table). However, this rate may be misleading, because of the influence of the public sector, where changes to plan designs are rarely made. In fact, the proportion of public sector workers covered by defined benefit plans increased from 82% in 1986 to 88% in 1994. At the same time, the share of private sector paid workers participating in defined benefit plans decreased over this period, though only marginally, from just over 27% to 25%.⁶

Table
RPP membership by type of plan and sector

	All plans *		Defined benefit	
	Members	Coverage **	Members	Coverage **
	'000	%	'000	%
Both sectors				
1986	4,668	43.6	4,296	40.1
1988	4,845	42.5	4,430	38.8
1990	5,109	42.4	4,634	38.4
1992	5,318	45.0	4,776	40.4
1994	5,215	44.2	4,645	39.3
Public sector				
1986	2,086	83.6	2,043	81.9
1988	2,172	88.0	2,120	82.3
1990	2,266	89.7	2,212	87.5
1992	2,555	95.1	2,464	91.7
1994	2,461	92.1	2,360	88.4
Private sector				
1986	2,582	31.4	2,252	27.3
1988	2,673	30.3	2,310	26.1
1990	2,844	29.8	2,422	25.4
1992	2,764	30.2	2,312	25.2
1994	2,759	30.2	2,285	24.9

Sources: Pension Plans in Canada database, Labour Force Survey and Public Institutions Division

* Includes combination and other hybrid plans, as well as defined benefit and defined contribution plans.

** Number of members as a percentage of total paid workers. Members residing in the Yukon and Northwest Territories and outside Canada are excluded from this calculation, since the Labour Force Survey does not cover these areas.

Job losses and new plans

This small decline is even more surprising when factors other than switches from defined benefit plans are considered. Extensive layoffs in industries that have traditionally had high defined benefit coverage rates would have contributed to the decline. For example, from 1986 to 1994 the mining, quarrying and oil well industries lost 16,400 RPP members; transportation, communication and other utilities dropped 32,100 members; and manufacturing in primary metals, fabricated metals, and machinery together lost 49,800 RPP members. Considering the extent of these job losses, it would appear that some offsetting gains in defined benefit plan coverage were made through jobs created in other industries.

In fact, there was a preference for defined benefit plans in new RPPs registered from 1986 to 1994, although this preference was much weaker than it had been. In 1994, of the 260,000 workers participating in the 4,400 new plans established during that period, 56% (146,000) had a defined benefit formula and the remainder, a defined contribution formula. Despite the addition of these new plans, 89% of all RPP members had a defined benefit formula that year.

Growth in defined contribution arrangements, particularly the surge in group RRSPs, was not solely at the expense of defined benefit RPP coverage. Indeed, group RRSPs have been adopted by employers either as a supplemental program to an existing RPP or in lieu of an RPP altogether. This latter development is important when the extent to which workers are covered by some form of employer-sponsored pension program is considered. The 30% private sector RPP coverage rate presents only part of the picture. Overall coverage is likely much higher. Furthermore, the defined contribution share of total retirement savings

may be increasing more rapidly than that generated by defined benefit plans.

A somewhat different picture in the United States

The perception of a mass movement away from defined benefit plans may have arisen from observations of this development in the United States. From 1980 to 1987, the percentage of American private sector workers covered by a defined benefit pension plan decreased from 38% to 31%. At the same time, the percentage of workers with defined contribution coverage increased dramatically. While many of the new defined contribution arrangements were supplemental plans used by employers to top up benefits accrued in "primary" programs, the coverage rate of primary defined contribution plans increased from 8% of private sector workers in 1980 to 15% in 1987.⁷

Summary

The percentage of private sector workers covered by Canadian defined benefit RPPs has dropped only marginally in recent years, despite numerous reports of a growing disenchantment with these plans and a significant drop in coverage in the United States. It might be argued that the small decline is surprising, considering the conversions from defined benefit to defined contribution arrangements that have taken place, the loss of jobs in industries that historically have had high defined benefit coverage, and the greater preference for defined contribution arrangements in new RPP registrations than has been the case traditionally. However, the seemingly dramatic growth in group RRSPs is an important consideration when the percentage of workers with some form of pension provision is calculated, and may, over time, significantly reduce the defined benefit share of retirement savings.

Acknowledgement

The author wishes to thank Michael Sze, Consulting Actuary, Hewitt Associates, for his valuable comments and suggestions.

□

Notes

1 Most defined benefit RPP members tend to accumulate higher retirement pensions than those in defined contribution arrangements, assuming similar earnings and length of service. For a detailed analysis of benefit levels generated by different types of RPP, see Frenken (1995).

2 For an explanation of defined benefit plans' disadvantages to employers see Guay (1993) and Simpson (1991); for an explanation of the loss of both pension savings and RRSP opportunities when defined benefit plan members terminate before reaching the age of retirement, see Adams (1995) and Guay (1995); and for anecdotal data on transfers from defined benefit to defined contribution plans see Bak (1995), Heale (1993) and Schiele (1993).

3 These data are supplemental information contained in the Pension Plans in Canada database (see *About the Data*).

4 For further details contact Michael Sze, Consulting Actuary, Hewitt Associates, Toronto, at (416) 225-5001.

5 Increases in assets held for these plans are also an indicator of the growth of defined contribution arrangements. *Benefits Canada's* most recent Survey of Money Purchase Plan Suppliers found a total of \$30 billion held by financial institutions in Canada for defined contribution RPPs, group RRSPs and deferred profit sharing plans as of June 30, 1995, an increase of nearly \$7 billion over the amount recorded one year earlier (Bak and Grossi, 1995).

6 These rates are slightly different from those previously published by Labour Division (Statistics Canada, 1996) for a number of reasons. These figures exclude members in the Yukon and Northwest Territories and those outside Canada, since these regions are not included in the Labour Force Survey. Also, the contents of the public and private sectors differ somewhat.

7 Defined contribution arrangements include defined contribution pension plans, individual retirement accounts or IRAs (similar to individual RRSPs), so-called "401(k)" plans (similar to group RRSPs) and employee stock ownership plans. For a detailed description of these plans and the trend toward their adoption, see U.S. Department of Labor (1992).

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A job to die for

Katherine Marshall

In 1992, Canadians were stunned when 26 miners were buried alive in the Westray Mine in Nova Scotia. Accidental death related to work happens to relatively few Canadians, but commands attention because it happens unexpectedly to otherwise healthy people. In addition to accidents, death can result from illness caused by exposure to environmental hazards in the workplace.

Work-related death also stands out because of its large financial and personal cost. Apart from its effect on family and friends, a death at work can reduce productivity because of temporary shut-downs, loss of morale and the training of replacement workers.

This article traces job-related deaths over three 6-year periods (1976 to 1981, 1982 to 1987 and 1988 to 1993), and examines differences in fatality counts and rates by industry, region, occupation, age, sex, and cause of death. It concludes with data on the financial cost associated with these deaths (see *Data sources and limitations* and *Definitions*).

Many deaths occur in manufacturing

From 1976 to 1993, almost 17,000 Canadians were fatally injured in the course of, or as a result of, their employment (Table 1)¹ – an average of more than two deaths a day. Four industries – manufacturing; construction; transportation and storage; and mining, quarrying and oil wells – accounted for 63% of all fatalities (over 10,000 deaths). In each of the three periods examined,

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Data sources and limitations

Fatality data are supplied to Human Resources Development Canada by provincial Workers' Compensation Boards and Commissions (WC); data on the number of paid workers (used in the calculation of rates) originate from Statistics Canada's Labour Force Survey (LFS). (Statistics Canada received detailed fatal work injury data from WC for 1993 and 1994.) Fatalities are reported for workers aged 14 and over, while paid worker data from the LFS cover only those persons aged 15 and over. This discrepancy is negligible as work-related fatalities among 14 year-olds are extremely rare.

The fatal work injury counts are a census of all accepted WC cases and are therefore not affected by sampling variability errors. However, the data concern only workers covered by WC, mainly paid workers. Since 1995, the Workers' Compensation Acts in Canada provide compulsory coverage for most workers in most industries, ranging from 70% to 100% depending on the jurisdiction (AWCBC, 1995). Persons most likely not covered by WC are the self-employed, unpaid family workers and workers in professional offices, although all may, and some do, apply for coverage. Therefore, WC fatality counts are in fact an under-representation of the total number of work fatalities in Canada. In particular, work deaths prior to 1995 may be seriously under-counted in the agriculture industry, where WC coverage has been traditionally excluded. However, the trend to expand compulsory coverage now includes workers in agriculture, who, since 1995, have had compulsory coverage in most jurisdictions.

the highest number of work-related deaths were traced to manufacturing (one in 6); but, as in many other industries, fatality counts have dropped over time.

Newfoundland and New Brunswick have not provided fatality reports since 1991, nor has Quebec since 1992. These missing counts are not likely to affect the results of this paper since the analysis centres on fatality rates, and adjustments were made to compensate for the excluded data; that is, when 1992 and 1993 national and regional fatality rates were calculated, paid worker counts for Newfoundland and New Brunswick were excluded from the denominator to match the missing counts in the numerator. (Similar exclusions were made in 1993 to adjust for missing Quebec data.)

The recording of fatalities is not uniform across Canada: Quebec reports by year of compensation; Ontario by year of death; and all other provinces by year of accident. Fatalities caused by exposure are the most likely to be affected by these variations, because some exposure deaths are gradual and will therefore have different accident and death dates. For example, if a person died of asbestos poisoning in 1992 but compensation was awarded in 1993, Ontario would report the fatality in 1992, Quebec in 1993 and the remaining provinces in the year (estimated) the poisoning began. However, the estimated number of exposure cases with dates that fall outside the study periods are sufficiently small as not to affect national results.

Finally, the data were aggregated over three 6-year periods (1976-1981, 1982-1987, 1988-1993) because of the limited number of observations available in any one year.

From 1988 to 1993 (the most recent period examined), 863 people died while working in manufacturing or as a result of having once been employed there.

Definitions

Work-related fatality: Any fatal injury, disease or illness resulting from a work-related incident that has been accepted for compensation by a Workers' Compensation Board or Commission. An accepted case means the death was connected with, or directly related to, the performance of the worker's current or past job.

A death may occur at a worker's usual place of work (for example, a mine) or anywhere else duties are performed (an outdoor hydro line for instance). The death may be instantaneous (caused by a fall, for example) or may happen much later (years after exposure to carcinogens at work).

Fatality rate: Although a fatality count is important, a more telling indicator of risk is the fatality rate, which expresses the number of work-related deaths per 100,000 paid workers. More specifically, the rate represents the number of people in a particular

group (for example, an industry, occupation or age range) who died from a fatal injury, disease or illness resulting from their employment, in a specific period, divided by the sum of the annual average paid worker counts for that group during that period. (In some provinces, the year of accident or claim acceptance determines the time frame assigned. See *Data sources and limitations*.) As an example, the national fatality rate in the construction industry from 1988 to 1993 is calculated as follows:

$$(N / W) \times 100,000$$

where

N = the total number of work-related fatalities in construction from 1988 to 1993 (from WC Boards and Commissions)

W = the sum of the annual average counts of paid workers in construction from 1988 to 1993 (from the LFS).

The ratio is multiplied by 100,000, which allows the rate to be expressed in whole numbers, and thus represents the number of deaths per 100,000 paid workers.

An employment-based fatality rate, such as the one used in this paper, measures the fatality risk for those employed at the time the LFS was carried out. However, the annual average number of paid workers does not reflect the movement of workers in and out of the workforce, nor does it account for the volume of work performed (for example, part-time or part-year employment), which may differ for various groups. A number of factors may affect fatality rates: worker experience, number of hours worked, physical and other demands of the job, occupational environment, condition of equipment, human error, legislation, and presence and effectiveness of health and safety regulations.

Table 1
Fatalities and fatality rates by industry, 1976 to 1993

	Fatalities				Fatality rates *			
	1976-93	1976-81	1982-87	1988-93 **	1976-93	1976-81	1982-87	1988-93 **
All industries	16,668	6,260	5,437	4,971	9	11	9	7
Agriculture†	295	84	113	98	10	9	11	10
Fishing and trapping	363	120	128	115	145	182	155	113
Logging and forestry	1,022	405	338	279	90	97	89	82
Mining, quarrying and oil wells	2,228	836	748	644	70	79	69	63
Manufacturing	2,942	1,094	985	863	8	9	8	8
Construction	2,750	1,047	874	829	27	32	28	23
Transportation and storage	2,520	1,092	744	684	29	36	26	25
Communication and other utilities	343	128	112	103	5	6	5	4
Wholesale trade	891	317	339	235	10	11	11	7
Retail trade	395	158	127	110	2	2	2	1
Finance, insurance and real estate	132	47	41	44	1	1	1	1
Government services	986	356	360	270	7	8	7	5
Other services ††	1,404	448	408	548	2	3	2	2
Industry not stated	397	128	120	149	..	..	..	..

Sources: Workers' Compensation Boards and Commissions, and Labour Force Survey

* Work-related deaths per 100,000 paid workers (see Definitions).

** Fatality counts are missing for Newfoundland and New Brunswick in 1992 and 1993, and for Quebec in 1993; paid worker counts for these provinces and years were excluded from the denominators in fatality-rate calculations.

† Agricultural workers have traditionally been excluded from Workers' Compensation coverage, so the fatality counts and rates shown are an under-representation (see Data sources and limitations).

†† Includes business services; educational services; health and social services; accommodation, food and beverage services; and other services, such as amusement and recreational services, personal and household services, and membership organizations.

However, because of this industry's high number of paid workers,² its fatality rate was relatively low (8 per 100,000). In contrast, many other industries were responsible for fewer deaths but had much higher fatality rates, because of their relatively small workforces.

Although fatality rates have been falling ...

Over the 18 years covered by this study, there was a substantial reduction in the national fatality rate: from 11 per 100,000 paid workers in the 1976 to 1981 period, to 7 per 100,000 between 1988 and 1993 (Table 1). In industries with initially low fatality rates, figures remained relatively unchanged over the three periods; in industries with high rates between 1976 and 1981, death rates steadily decreased. For example, the fishing and trapping industry fatality rate improved from 182 in the first period to 113 in the last.

jobs in primary industries are still risky ...

But in spite of these gains, fatality rates remained high in most primary industries: fishing and trapping (as mentioned above); logging and forestry (82 per 100,000 paid workers between 1988 and 1993); and mining, quarrying and oil wells (63). The relatively low fatality counts and rates for agriculture are an under-representation because until recently this industry has been excluded from compulsory Workers' Compensation coverage (see *Data sources and limitations*). American and regional Canadian studies indicate that agricultural work is in fact riskier than average.³

Work in the primary industries usually requires physical exertion and dexterity; in addition, many employees must work outside in all kinds of weather, as well as in rugged terrain, on water or underground. To these difficulties are

added the dangers of handling hazardous materials or heavy machinery. Such work inevitably places people at greater risk of injury or death.

while rates in most service industries have always been low

The safest industries are in the service sector.⁴ With one exception, fatality rates were below 12 per 100,000 paid workers in all three periods studied. For example, in retail trade and in finance, insurance and real estate, the death rates were only one per 100,000 between 1988 and 1993. An exception was the transportation and storage industry, which registered a rate of 25 during this period; nevertheless, this figure was an improvement over death rates seen in earlier periods. Another study, which looked at absences from work due to illness or disability, also found that the service sector, particularly trade and the finance, insurance and real estate industries, had

lower-than-average absence rates (Akyeampong, 1995).

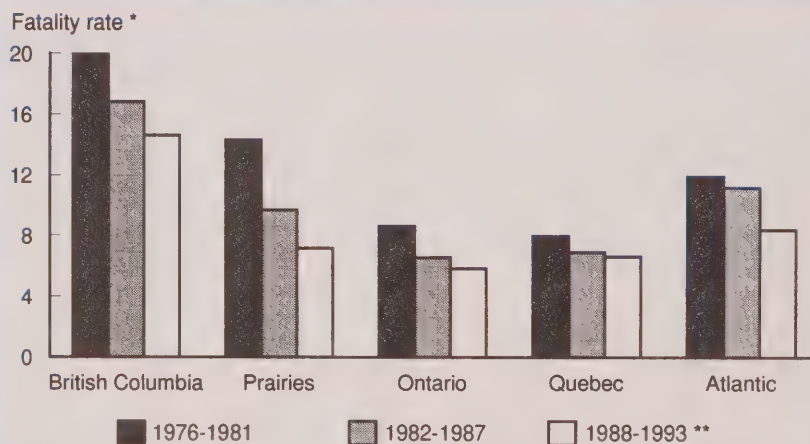
Rates vary by region

The most recent six-year period (1988 to 1993) shows that British Columbia had the highest death rate at 15 per 100,000 paid workers, followed by the Atlantic provinces with 8, the Prairies and Quebec both with 7, and Ontario with 6. Although all regions saw a steady decline over the study's time frame, the Prairie provinces and British Columbia experienced the most dramatic improvements: from 14 to 7 deaths per 100,000, and from 20 to 15, respectively (Chart).

As previously noted, fatality rates vary by industry, which accounts in part for regional differences. In the 1988 to 1993 period, one in 7 paid workers in British Columbia, as well as in the Prairies and the Atlantic provinces, were employed in fishing and trapping;

Chart

Work-related fatality rates have been falling in all regions.



Sources: Workers' Compensation Boards and Commissions, and Labour Force Survey

* Work-related deaths per 100,000 paid workers (see Definitions).

** Fatality counts are missing for Newfoundland and New Brunswick in 1992 and 1993, and for Quebec in 1993; paid worker counts for these provinces and years were excluded from the denominators in fatality-rate calculations.

logging and forestry; mining, quarrying and oil wells; construction; and transportation and storage – the five most dangerous industries. In comparison, one in 10 employees in both Quebec and Ontario worked in these industries.

Workers in British Columbia were the most likely to be employed in high-risk industries (16% of all paid workers in this province). They also experienced higher-than-average fatality rates in most of them. For example, from 1988 to 1993 the province posted the highest fatality rates of all the regions involved in logging and forestry (131 per 100,000 paid workers, compared with a low of 28 in Ontario), construction (37 compared with 8 in Quebec), and transportation and storage (46 compared with 15 in the Atlantic provinces). British Columbia's rugged terrain probably makes logging, road construction and highway driving more dangerous than in other regions.

Occupations in mining are the most dangerous

In order to determine which occupations are the most dangerous it is important to focus on fatality rates, rather than counts. For example, between 1988 and 1993 a relatively low number of deaths (64) were associated with log hoisting, sorting and moving, but because relatively few people worked in this job, it had a high fatality rate of 116 per 100,000. Similarly, truck driving accounted for 10% (496) of all fatalities (4,971) in the 1988 to 1993 period, but had a death rate of only 38 per 100,000 paid workers, placing it eighth among the 10 occupations with the highest fatality rates (Table 2).

Two occupations had strikingly high fatality rates in this period: mining and quarrying (cutting, handling and loading) and construction (insulating) had rates of 281 and 246 per 100,000 paid workers, respectively.

Table 2
The 10 most dangerous jobs, 1988-1993

	Fatalities	Fatality rates *
All occupations	4,971	7
Top 10 occupations combined **	1,354	58
Mining and quarrying: cutting, handling, loading	212	281
Construction: insulating	65	246
Mining and quarrying: labouring	56	139
Air pilots, navigators and flight engineers	77	137
Timber cutting	108	123
Log hoisting, sorting and moving	64	116
Net, trap and line fishing	67	110
Truck drivers	496	38
Construction: labouring	122	35
Construction: pipefitting and plumbing	87	31

Sources: Workers' Compensation Boards and Commissions, and Labour Force Survey

* Work-related deaths per 100,000 paid workers (see Definitions).

** Based on the 1980 Standard Occupational Classification, coded to the 4-digit level; each occupation listed had at least 50 deaths between 1988 and 1993.

Fatality rate is highest for older men

Most workers whose deaths were registered in the 1988 to 1993 period were men (96%); this proportion varied little by age group. Presumably, more men than women die from job-related causes because of their over-representation in the higher-risk industries and occupations. Women are more likely to work in the "safer" service industries.

The largest number of work deaths (929) was among people aged 25 to 34, accounting for 19% of all deaths between 1988 and 1993. However, the fatality rate of this age group was low, hovering just above zero for women and reaching 8 per 100,000 paid workers for men (Table 3).

Among women, fatality rates remained below 5 per 100,000 regardless of age. The picture was quite different for men, however. Their rates initially rose slowly with age – from 6 per 100,000 for 15 to 24 year-olds, to 12 for 45 to 54 year-olds, and to 28 for 55 to 64 year-olds – then jumped to 203 per

100,000 for men aged 65 and over. The aging process, which reduces agility, stamina and overall health, is one factor that puts older men at greater risk of injury or death, particularly if workers are in the more physically demanding blue-collar jobs. In addition, many older people, who have long since retired, die from exposure to environmental hazards encountered earlier in their working lives.

Causes of death

One in five work-related fatalities accepted by Workers' Compensation Boards and Commissions for the 1988 to 1993 period were caused by exposure to harmful substances, including poisons, chemicals, allergens, carcinogens and radiation. Almost as many involved transportation vehicles, mostly trucks and cars (65%), but this category also covers aircraft and watercraft. Workers also died from being struck or caught by objects, and from falls, overexertion, fire and explosion, electrocution and violence⁵ (Table 4).

The two leading causes of death affect certain age groups differ-

Table 3
Fatalities and fatality rates by age and sex, 1988-1993

	Fatalities *		Fatality rates **	
	Men	Women	Men	Women
Total	4,788	181	13	1
15-24 †	371	24	6	-
25-34	888	40	8	-
35-44	800	42	9	1
45-54	733	27	12	1
55-64	898	21	28	1
65+	887	11	203 ††	4
Age not stated	211	16	..	..

Sources: Workers' Compensation Boards and Commissions, and Labour Force Survey

* Excludes two cases where sex was not reported.

** Work-related deaths per 100,000 paid workers (see Definitions).

† Fatalities are reported for workers 14 years and over.

†† This high rate reflects the large number of retirees who died from earlier exposure to harmful substances.

ently. Exposure-related death, which can happen gradually, accounted for 55% of all work fatalities among persons aged 65 and over and 13% among persons under 65. In contrast, transportation accidents were the leading cause of death among those under 65 years (26%), but accounted for only 3% of deaths for persons 65 and over.

Fatality costs are deadly

The cost of a fatality, in terms of survivors' benefits, is huge. In 1993, \$5.6 billion was awarded for 881,512 injury and fatality claims for all provinces combined. Although fatalities accounted for only 735 (or 0.1%) of these claims, they cost \$361 million in benefits (6.4% of the total). As a result, the cost per fatality averaged \$492,000; in comparison, the cost per injury averaged \$6,000. Beyond the costs assumed by Workers' Compensation, there may have been increased insurance premiums for the employer as well as safety violation fines. Of course, the emotional cost to the victims' families and friends is incalculable.

Summary

From 1988 to 1993 the manufacturing industry experienced the highest number of work-related fatalities among paid workers (863); nevertheless, this industry had one of the lowest death rates (8 per 100,000). At 113 deaths per 100,000, the fishing and trapping industry was the most dangerous in

which to be employed. In terms of specific high-risk occupations, miners who cut, handled and loaded material had the highest fatality rate (281 per 100,000). High-risk jobs tend to be held by men, who accounted for 96% of all work-related deaths.

Occupational deaths are tragic and expensive to compensate. The monitoring and surveillance of such fatalities can shed light on the effectiveness of safety policies and programs over time, and help pinpoint work environments that may require further preventive intervention. Certainly, it is encouraging that Canada's fatality rates have progressively improved since the mid-1970s.

Acknowledgement

The author wishes to thank John Hemingway, Occupational Safety and Health Branch, Human Resources Development Canada, for his time and effort in providing data and documentation used in this article.



Table 4
Causes of work fatalities, 1988-1993

	Number	%
All fatalities	4,971	100
Exposure to harmful substance *	982	20
Involving transportation vehicle	933	19
Struck by object	891	18
Fall from elevation	425	9
Bodily exertion and heart attack	311	6
Caught in, on, between object(s)	255	5
Struck against	194	4
Fire and explosion	139	3
Contact with electric current	138	3
Violence	93	2
Fall from same level	78	2
Other **	532	11

Sources: Workers' Compensation Boards and Commissions

* Half of all exposure-related deaths (497) happened to people aged 65 and over.

** Includes past injuries and cases not elsewhere classified.

■ Notes

1 The figures in this study are for the provinces only. The Yukon and Northwest Territories are excluded because the Labour Force Survey does not provide their paid worker counts, which are required in the calculation of fatality rates.

2 Between 1988 and 1993, 17% of all paid workers were employed in manufacturing.

3 The 1993 Census of Fatal Occupational Injuries in the United States showed a fatality rate of 34 per 100,000 agricultural workers (Toscano and Windau, 1994), and a Canadian study of fatal farm injuries in Ontario yielded a rate of 56 per 100,000 farms from 1984 to 1992 (Brison and Pickett, 1995).

4 The service sector includes transportation and storage; communication and other utilities; wholesale trade; retail trade; finance, insurance and real estate; government services; and other services.

5 Canadian and American work-related fatality data follow similar patterns, with one exception. In Canada, violence in the workplace has remained stable and rare (2%); in the United States, violence (predominantly shootings) was the second leading cause of death at work in 1993 (following highway fatalities), accounting for 21% of work-related fatalities (Toscano and Windau, 1994).

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Do earnings rise until retirement?

Yves Saint-Pierre

Many people believe that a steady job provides regular pay increments, or at least steady pay, until retirement. In fact, though, in any given year the earnings of men working full year full time are higher, on average, among 45 year-olds than among 60 year-olds. For example, in 1980, 1985 and 1990, the average earnings of Canadian men aged 60 to 64 were 85% to 87% those of men aged 45 to 49.

Cross-sectional data show that the earnings of men working full year full time rise with age, until a peak is reached in the forties, followed by a gradual decline that continues until retirement (see *Definitions*). This pattern has persisted for years (Chart A), and has been noted in many other industrialized countries as early as the 1950s (Kreps, 1971).

In terms of earnings, it would seem that working men in their early sixties are no better off than men in their thirties. But does this mean that earnings actually drop prior to retirement, or do they simply not keep up with increases obtained by younger men?

This article looks at some of the possible explanations for the apparent decline in the average earnings of older men working full year full time. It also considers the difficulties inherent in the use of cross-sectional (as opposed to longitudinal) data to address this issue.¹ Women are excluded from the study because only recently have their age-earnings profiles begun to look like those of men.

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Definitions

Earnings, sometimes called "employment income," include wages and salaries, tips and commissions, and self-employment income. **Real earnings** are earnings adjusted for inflation.

Full-year full-time (FYFT) workers are those who worked at least 49 weeks at 30 or more usual hours per week during the calendar year preceding the census or survey (see *Data sources*).

In this study, **newly retired** men are those who were not in the labour force at the time the Survey of Consumer Finances (SCF) was carried out (excluding those attending school) but were employed full time for at least one week the previous calendar year.

Cross-sectional data can be described as a snapshot of a situation. When a survey is carried out, its sample is representative of the population at that point in time. The following year, the same type of information can be collected from a different sample, which is also representative of the population that year. Because the population changes from year to year, for reasons such as migration, births and deaths, cross-sectional data are very useful for comparing similar populations over time; for example, the population of 45 year-olds employed full year full time in 1980 can be compared with the population of 45 year-olds employed full year full time in 1990.

Theoretical rationale

Some economists have interpreted the age-earnings relationship in the context of human capital theory, which holds that education and work experience are the main factors behind the rise in earnings at the start of a career. At this point in their lives, people invest time in education and training in order to

A **cohort** is a group of people linked by some event in time (birth, high school graduation in a specific year, etc.) Cohorts can be built from cross-sectional data, though people may enter or leave a cohort population through birth, death, migration or other events. This means that the longer the period examined, the less likely the group studied at the end of the period will be exactly the same as that studied at the beginning. This particular study deals with five-year age cohorts of men employed full year full time, based on their age in a particular year. Because of migration, death, and more importantly, movements in and out of full-time employment, these cohorts have changed in size and composition over time. They have also aged over the time frame studied; for example, the cohort aged 35 to 39 years in 1985 was aged 36 to 40 in 1986, 37 to 41 in 1987, and so on.

Longitudinal data are derived from the same people at specified intervals over time. While cross-sectional data may reveal how many people were unemployed in a year, longitudinal data will show whether the same people were unemployed year after year. In this study, the use of longitudinal data, had it been available, would have shown how many employed men aged 50 to 60 saw their real earnings decline, and how many saw them rise.

benefit from higher earnings later on. As they grow older, skills become obsolete; however, the expense of taking time off for training must be amortized over a shorter and shorter period, so older workers have less incentive to keep up their skills. As a result, the value of human capital depreciates with age, which in turn leads to lower earnings (Beach, 1981).

Much empirical work has been done to validate the theory of rising earnings, although little or no research appears to have been undertaken to explain the decline in earnings past the peak period in mid-career. To accomplish this, studies would need to account for investment in on-the-job training, but such information is rarely available and difficult to measure.

A conventional approach

There appears to be an inverse relationship between earnings and age after age 45 for men working full year, full time (Chart A). For instance, in 1990, the expected earnings at ages 45 to 49 were \$46,000; at ages 60 to 64 they had dropped to \$39,700 (86% of the former).

Another explanation for declining earnings could be a reduction in hours. Data on usual weekly

Data sources

The data used in this article originate from the Census of Population (conducted every five years), the monthly Labour Force Survey (LFS), and the annual Survey of Consumer Finances (SCF), which is carried out in conjunction with the LFS in April each year. The census provides comprehensive information, while the LFS and SCF furnish more recent data.

Earnings were obtained from both the census and the SCF. Census-based estimates of earnings refer to the previous year; for example, the 1991 Census provides data on earnings received in 1990. Similarly, SCF-based earnings pertain to the year preceding the survey. SCF earnings data were used to examine relationships with

hours of work data obtained from the LFS. The LFS also provided demographic information such as age and sex.

The population covered by the census changed during the period studied. In 1971, people living in institutions were included; in 1981, 1986 and 1991, they were excluded. Non-permanent residents were included in 1991. Furthermore, data on earnings for 1975 were not collected in the 1976 Census. Estimates from the SCF exclude people whose major source of income was military pay or whose earnings were zero (that is, unpaid family workers), but include those whose earnings were negative (because of self-employment losses).

hours worked² for the years 1990 to 1993 show that, in general, older men working full year full time (FYFT) tend to work a slightly

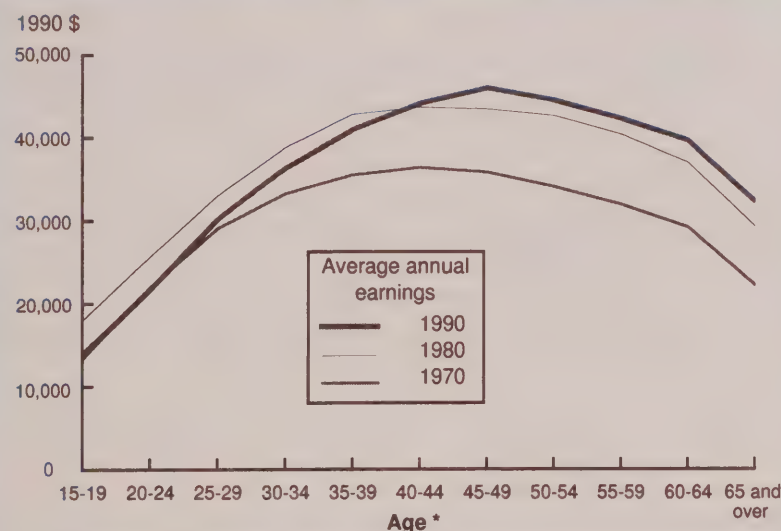
shorter week than those in their peak earning years. For the years examined, the disparity in usual hours worked between FYFT workers aged 45 to 49 and those aged 60 to 64 was greatest in 1991 (44.8 hours for the former, 43.5 for the latter), and was actually reversed in 1990 (44.8 hours versus 45.2). These fluctuating discrepancies seem to indicate that the observed decline in earnings may be only marginally related to changing hours of work among older workers.

Other factors may also be involved, such as a change in the characteristics of the jobs held. Some workers laid off or having temporarily retired may find themselves re-employed in a lower-paying job. In some cases, an older worker's earnings may not have kept up with the cost of living, even though they have remained stable or increased slightly over time; in this situation, real earnings drop and can be overtaken by those of younger workers whose earnings are rising faster.

Furthermore, while the earnings of 60 year-old FYFT workers are

Chart A

Cross-sectional data suggest that men employed full year, full time reach peak earnings in their forties.



Source: Census of Population (1971, 1981 and 1991)

* Age at the time of the census.

well below those of 45 year-olds in any given year (cross-sectional view), the former may never have earned the peak reached by their younger peers.³

A different perspective

To address these possibilities, the annual earnings of FYFT workers (adjusted for inflation) were analyzed using cohorts (see *Definitions*). Chart B combines the 1990 age-earnings profile (broken line), reflected by the 1991 Census, with data obtained for specific cohorts during previous censuses when these cohorts were younger (solid lines). For each cohort examined, the decline in real earnings is not as steep as that seen in the cross-sectional profile. Consider, for example, "cohort 60-64." For this group (aged 50 to 54 in the 1981 Census and 55 to 59 in the 1986 Census) the drop in earnings

between 1980 and 1985 is somewhat smaller than that seen in the cross-sectional presentation (-3.3% versus -5%).

Effects of a changing population

Although the cohort illustration above shows declines in real earnings before retirement, this phenomenon could result from a changing population rather than a decline in the population's earnings. For instance, older cohorts shrink in size as they age, suggesting that the change in the average earnings of the older age groups in the cross-section could be influenced by any bias among those who drop out of the cohort when they retire (that is, if those with higher earnings prior to retirement are over-represented in this group).

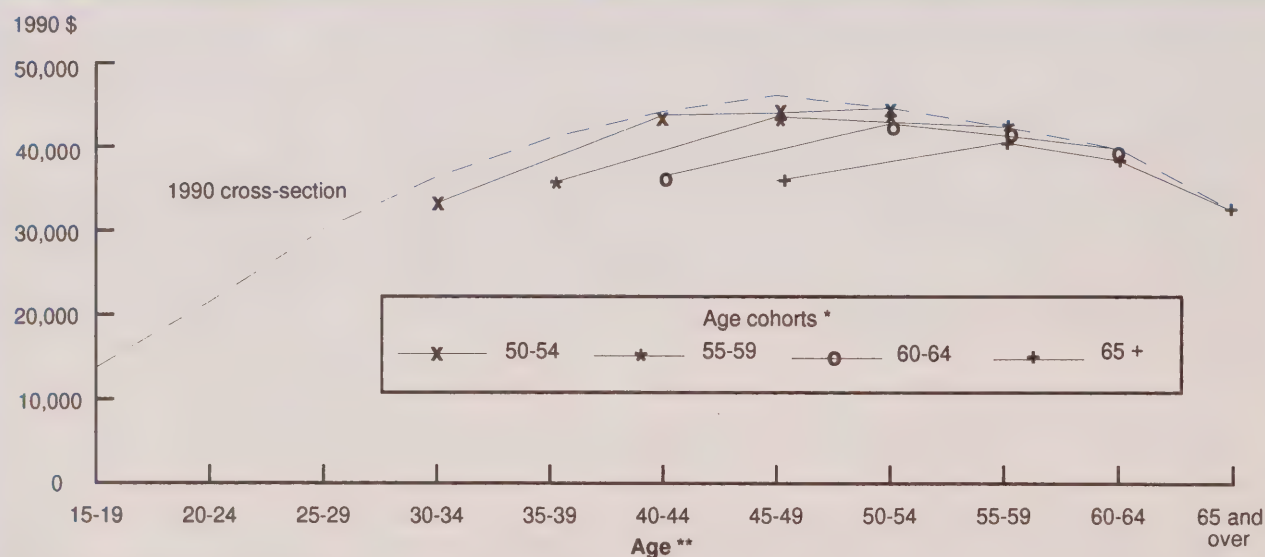
Shrinking cohorts are seen in Chart C, where in 1984 about three

in four men aged 45 to 49 were employed FYFT;⁴ this ratio was maintained until 1989 (when this group was aged 50 to 54), and then began to fall. Four years later, their FYFT rate had dropped to 59%. Older men experienced even sharper drops in FYFT rates, while those for the younger cohorts remained relatively stable over the 1984-93 period.

Diminishing cohorts of FYFT workers in older age groups can bias cross-sectional earnings upwards as well as downwards. Some people who died or retired at a young age may have had lower earnings because of ill health, while others may have been able to retire early because of high career earnings. If there are more of the latter than of the former, the average pre-retirement earnings of newly retired men may be higher than those of other full-year full-

Chart B

Cohort analysis shows less pronounced, later declines in men's earnings.



Source: Census of Population (1971, 1981, 1986 and 1991)

Note: For each age cohort, four data points are plotted representing earnings in 1970, 1980, 1985 and 1990. Earnings data are not available for 1975.

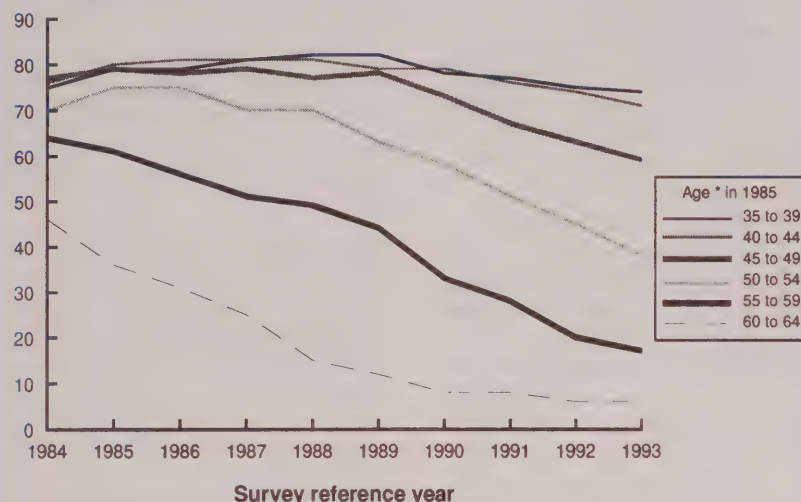
* Cohorts are labelled according to their age at the time of the 1991 Census.

** Age at the time of the census.

Chart C

The full-year, full-time employment rate drops quickly once men have reached their fifties.

% of male population



Source: Survey of Consumer Finances (SCF)

* Age is determined at the time of the survey but full-year, full-time (FYFT) employment rates are based on the preceding calendar year (the survey reference year). For example, when the SCF was carried out in April 1985, about 64% of the men then aged 55 to 59 had worked FYFT the year before. In April 1986, 61% of men aged 56 to 60 had worked FYFT in 1985.

time workers of the same age. Is that indeed the case?

To test this hypothesis, the study compared the previous year's earnings of newly retired men⁵ (who had some full-time work in the previous year) with those of non-retired FYFT workers; comparisons were made using mean and median earnings by age group. Both of these were higher for newly retired men than for non-retired FYFT workers: mean earnings were about 34% higher for the newly retired aged 55 to 59, and 14% higher for those aged 60 to 64; by comparison, median earnings were 2% greater for new retirees in the 55 to 59 group, and 5% greater for those in the 60 to 64 group.

The earnings of the newly retired as well as the non-retired

FYFT workers were not homogeneous, however. Nevertheless, according to three well-accepted measures of inequality,⁶ the spread of earnings among newly retired men aged 55 to 64 was much greater than that of FYFT workers in the same age group. Detailed data show that although the average earnings of the newly retired were greater, proportionally more of these men had lower earnings. Some of them may have retired, despite having low earnings, because of ill health or job loss.

Conclusion

This study has considered several possible explanations for the decline in the real earnings of men employed full year full time from their mid-forties onwards. One hypothesis suggests that those who

can afford to retire do, leaving behind those who earn less, which depresses the average. There is some evidence of higher earnings among the newly retired, at least for the older age groups.

But the question of whether or not an individual FYFT worker's earnings actually decline before retirement remains unanswered. To solve this riddle, longitudinal data are required. Though some longitudinal administrative data are available from income tax files, the latter cover only information reported on a tax return, which excludes most labour force characteristics (for example, the existence of full-year full-time employment). Hence, tax files do not allow the kind of analysis of interest here. Fortunately, before the decade is over Statistics Canada will have accumulated enough data from one of its new longitudinal surveys – the Survey of Labour and Income Dynamics (SLID) – to present research opportunities not possible previously.⁷ □

Notes

1 Since this study is based on averages, the conclusions may not be applicable to individuals.

2 These are the weekly hours usually worked at the time of the survey (the April following the year for which income data were collected), which are used as a proxy for hours usually worked throughout the previous year. Individuals reporting zero usual hours of work for April but who had worked full year full time the previous year were excluded from the tabulations. If an individual had more than one job, the usual weekly hours worked at all jobs were combined.

3 Indeed, real earnings growth is probably linked to the state of the economy.

4 To remind the reader, the age groups noted here pertain to the month of April following the year to which a FYFT rate refers; for example, three in four workers aged 45 to 49 in April 1985 had worked full year full time in 1984.

5 In order to obtain full-year equivalent earnings for each retiree for a specific year, the previous year's earnings were divided by the number of weeks worked, then multiplied by 52. The figures cited for the earnings ratio between new retirees and full-year full-time workers are averages of the ratios of mean and median earnings for 1984 to 1993.

6 Three measures of earnings inequality were calculated for each year: the exponential measure, the Gini coefficient, and the coefficient of variation (CV). The higher the results of these calculations, the greater the inequality. The average CV for the newly retired was 1.301, whereas for full-year full-time workers it was 0.959. The average Gini coefficient was 0.449 for the newly retired, and 0.349 for others. Finally, the exponential measure (excluding 1992 where it was almost ten times greater than in other years for other FYFT men) was 0.486 for the newly retired, and 0.438 for others.

A good discussion of these measures is provided in Wolfson (1995). For a discussion at a more basic level, see chapter 5 in Beach (1981), and chapter 2 in Sen (1973).

7 Some analysis based on SLID results from a preliminary interview has already been released (see *Dynamics of Labour and Income*, Catalogue no. 75-201-XPE); a CD-ROM containing microdata for the 1992 reference year is also available for \$1,700 (Catalogue no. 75M0001XCB). For more information about the Survey of Labour and Income Dynamics, contact Philip Giles at (613) 951-2891.

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The future of data dissemination

Report on a symposium

The revolution in information technology has radically altered people's requirements for information — not just its content, but its format and speed of delivery. Naturally enough, statistical agencies have been greatly affected by those changed expectations.

Statistics Canada hosted its 12th annual International Symposium on Methodology Issues, November 1 to 3, 1995. Speakers addressed numerous issues related to providing information from many sources of statistical data. The three days offered an opportunity for discussion among the professionals who make, shape, analyze, store, sell or otherwise use statistics.

This report provides brief summaries of selected speakers' remarks about the analysis and dissemination of information: the type of integrated data needed now, the response of statistical agencies to user demands, and the effect of information technology on the distribution of data. All presentations made will be published in the symposium's formal proceedings. (Ordering information follows this report.)

Part 1: The future of statistical data

*Peter Hicks, Head,
OECD project on policy implications of aging societies*

Introducing the keynote address on "the role of statistics in making social policy," Mr. Hicks observed that there is a radical worldwide shift in social policy from an ideological to an empirical basis. This new social policy still needs an

This report was prepared by Susan Crompton, who was with the Labour and Household Surveys Analysis Division.

intellectual/conceptual framework with a statistical database to support it, and Canada is well-placed to play a major role in developing both.

The ideal statistical database should be comprehensive in breadth and depth. Statistics with "breadth" are able to illuminate a wide range of activities such as work, learning, and the family; to analyze intergenerational and lifecycle issues; and to examine the effect of government programs on individual and social well-being. A database with "depth" is strong enough to measure the effectiveness of government programs; to create social indicators to signal emerging problems; and to predict, at the micro level, the best government program interventions for an individual or particular family. The ideal database should include both administrative records and survey data, coupled with the predictive power of microsimulation models.¹

Canada does not yet have consistent and integrated data to track problems over time, although many of the data needed by the new social policy already exist. The difficulty is that the sources cannot be linked since the conceptual framework that would allow their integration has not been formulated. However, Mr. Hicks believes such a framework is emerging. Based on time use — how and where people spend their time — it will offer unprecedented information about behaviour over the lifecycle, investment in human capital, lifelong learning, family life, acquisition of skills, and so on. Integrated time-use databases should soon provide the same solid statistical framework for social policy that Statistics Canada's System of National Accounts now provides for economic policy.

The integrated database, combined with microsimulation models, will allow social programs to be determined by evidence, not by ideology. For example, a program model now being tested by Human Resources Development Canada allows policy makers to assess the effectiveness of different interventions (for example, training or mobility programs) in terms of the real costs and benefits to government and society; at the same time, individuals thinking of participating in a particular program (for example, training or employment programs) can assess the probability of their success, based on the experience of previous participants with similar characteristics.

Eventually, databases such as these might be accessible to individual clients of social services through computer highways or information kiosks, thus shifting program delivery from large government departments to small agencies. Mr. Hicks concludes that using the database in this way could save billions of dollars currently being spent on social and health programs.

*Gordon Priest, Director,
Integration and Development
of Social Statistics
Statistics Canada*

Echoing Mr. Hicks' theme of integrated data, Mr. Priest added that pressures to build broad-based, multi-source information databases — or metadatabases — are growing as informatics technology makes it easier to manage massive amounts of data.

Creating metadatabases requires integrating data by linking sources. However, this has been slow to happen. Statistical agencies have always been "methods driven,"

collecting data using vehicles developed around specific methodologies and serving specialized clientele. Thus, an agency may have evolved as a consortium of relatively independent producers of data, making communication within the organization difficult. As a consequence, agencies themselves are often unaware of the full range of their data holdings, limiting their use to clients; disharmonies may render data from different sources incomparable when subject matter areas develop their own specialized concepts, definitions, classifications and data coding; and the data derived from one source may contradict that obtained from another.

Mr. Priest acknowledged that building and maintaining meta-information databases to accommodate increasingly sophisticated clients will be a challenge for statistical agencies. However, a good metadatabase will address the three basic weaknesses described above. It should document the content of the agency's microdata files, its tabular output, and its analytical/descriptive reports; furthermore, this information should be easily accessible using the subject or keyword approach. Resolving every disharmony between data sources may be more difficult to achieve, but the agency should be able to eliminate the worst offences, such as inconsistent classification or coding schemes, by adopting a standardized "template" for survey development. And the analytical outputs developed by the agency should be geared to specific issues or subjects, making use of the full range of relevant information rather than relying on a single source.

*Wouter Keller, Director,
Research and Development
Statistics Netherlands*

Dr. Keller noted that the information technology revolution has

greatly reduced the cost of data processing and storage, thereby changing the way statistical agencies must operate. Statistics Netherlands is already undergoing such a transformation: it is no longer looking exclusively at the internal aspects of data management (editing, processing, organizing), but at the external stages, that is, at data collection and dissemination.

In the Netherlands, medium-sized enterprises receive 30 to 40 statistical questionnaires each year from various government departments. Yet information technology could greatly reduce a firm's response burden, using the same type of computer-assisted data collection techniques that have substantially reduced response burden in household surveys. (This exercise also saves the statistical agency time and money: very little clerical work is necessary to clean data from the household surveys at Statistics Netherlands, but a great deal is needed for the business surveys.)

Statistics Netherlands is proposing to use Electronic Data Integration, or EDI, to collect data directly from each firm's electronic bookkeeping system; in essence, a firm's computer is connected to the agency's and data are downloaded through this link. A pilot study of EDI conducted among a small number of firms in 1994 elicited a generally positive response. However, the real difficulty with EDI linkage is not technological but "linguistic": bookkeeping concepts still have to be translated into statistical concepts, either by the firm or the statistical agency. This "conversion" problem can be solved by an electronic super-questionnaire.

The EDI super-questionnaire would meet the needs of all statistical agencies and government departments sending out questionnaires — on exports, imports, employees and payrolls, for exam-

ple — and reduce response burden to the "touch of a button" that operates the EDI link between the firm's and the agency's computers. But first, statisticians must agree on the definitions and concepts to be used in the questionnaire; then, the electronic bookkeeping used by the enterprise must be converted into the questionnaire's statistical language. Statistics Netherlands is aiming to introduce the electronic super-questionnaire by the year 2000; to this end, it is undertaking a second EDI pilot study of thousands of enterprises in 1996.

The application of EDI technology is not limited to reducing response burden. It can also determine the agency's data output program by integrating and amalgamating statistics in a metadatabase from which information can be downloaded in a variety of formats (CD-ROMs, diskettes, online via the Internet, and other customer-specific products).

Part 2: Customers come first

*Michael Blakemore
University of Durham*

Describing his talk as aggressively pro-customer, Mr. Blakemore called himself a "positioner of information in chaotic times." He reminded his audience that a variety of factors in addition to new technology had pushed statistical agencies to enter the information business. These other factors include government budget deficits, organizational downsizing, privatization, demographics, the switch from income to sales taxes, the globalization of business, and the separation of government policy from its operations (meaning the collector of information is no longer the primary user). All these "push" factors have affected the dissemination of government information and given rise to a number of concerns, especially fear of the

loss of public accountability, stable data series and privacy; worry about the creation of monopolies that can deny access to data for commercial (as opposed to privacy) reasons; and confusion over who – government or business – will be keeping the records.

Based on the experience of several data dissemination organizations in Europe, Mr. Blakemore identified the delivery of specialized services by small niche groups as an area of opportunity. Dissemination practices are changing from the old top-down approach in which the statistical agency develops products, to a bottom-up approach in which the customer defines the product. Furthermore, user groups mutate in confusing and often contradictory fashion, and external influences (for example, reorganization of government departments) can change the ground underfoot in unexpected ways. In these circumstances, he said, distribution systems providing smaller, targeted products can respond more effectively than large centralized systems.

In closing, Mr. Blakemore observed that a large number of customers would still need the services of “gatekeepers” to educate them and monitor their use of the data. He also warned that many people will be denied access to the information highway, often for political, religious or cultural reasons.

Ulla de Stricker
Stricker Associates

Introducing herself as an information marketer, Ms. de Stricker said that statistical agencies must recognize that they, too, are in the information business now. Statistical agencies’ customers will demand choice, convenience, and flexibility; they will ask for technological and/or analytical support when they believe it is needed. As they

become more statistically sophisticated, their tolerance for “sacred cows,” such as the painstaking precision that delays the release of data, will disappear. Customers will demand to decide for themselves whether the data quality is good enough for their purposes, and will want to select data from any point on the “information continuum” – from instant but raw, to polished but late. And since each customer must define the content, delivery vehicle, and flexibility of the data required, statistical agencies should allow users to participate in developing products and services.

Ms. de Stricker warned that technology creates new competitors as well as new customer demands. It makes it easier and cheaper to collect and manipulate data, and because the links between buyers and sellers are closer, the market is within easy reach of everyone in the business. In response, statistical agencies must use their information expertise and their data to secure partnerships in the market.

Part 3: Protecting privacy in the era of metadata

*David Brown, Executive Director,
Information, Communications
and Security Policy Division
Treasury Board Secretariat*

Mr. Brown discussed the basic principles of privacy that must be respected in the collection and management of information. People’s fear of losing their “informational privacy” – control over personal information – has grown in recent years, but surveys show that their greatest concern is having this information misunderstood or misinterpreted, leading to decisions that adversely affect them. Data collection for statistical purposes is not generally seen as a threat to privacy.

The federal government is one of the country’s largest collectors, managers and users of data, and as such has been sensitive to privacy concerns for a number of years. It first recognized the importance of informational privacy when it added a section to the *Canadian Human Rights Act*; these provisions were replaced in 1983 by the *Privacy Act*. (Its principles are based on the OECD privacy code, which has been adopted by most Western countries as the basis for their own legislation.) The *Statistics Act*, the *Income Tax Act* and the *Unemployment Insurance Act* also have provisions to govern the handling of personal information in specific institutions. Together, these laws establish the privacy principles that guide the government’s approach to the management of information.

The information privacy principles most applicable to the collection of statistical data require that

- the data collector fully inform the individual why the data are being collected (the purpose, whether participation is voluntary or obligatory, and so on);
- these data not be used for other purposes without the permission of the Privacy Commissioner, who may require that respondents be informed of the new use to which their personal information will be put;
- respondents have the right to access the data about themselves, and to ask that the file be corrected if it contains inaccuracies;
- the institution protect the confidentiality of the data it has collected.

Mr. Brown agreed that the amalgamation of databases to create metadatabases is very tempting, but warned that a balance must be maintained between ensuring the privacy of personal information

and meeting the efficiency goals of information management systems.

*Louise Desramaux, Director,
Data Access and Control Services
Statistics Canada*

Ms. Desramaux introduced her overview of Statistics Canada's privacy policy by reminding the audience of the Agency's two responsibilities: to provide valuable data, and to respect the confidentiality of individual respondents. These two goals can cause conflict but they are in fact linked.

In response to the public's concern about increased accumulation of personal information, and to the legitimate pressures from users to provide more detailed data, Statistics Canada has adopted a legislative-policy framework. Its legal foundation is provided by the *Statistics Act*, the *Access to Information Act* and the *Privacy Act*; the Agency has established internal policies and procedures to ensure compliance. Ms. Desramaux explained that the *Statistics Act* gives Statistics Canada the authority to collect data, obliging respondents to participate in surveys, but also obliging the Agency to protect confidentiality by suppressing any data that could identify a respondent once the data are disseminated. The *Access to Information Act* gives the public the right to access their personal information, but forbids third party access (no one may see the record on anyone else).

The third statute – the *Privacy Act* – has spurred the development of several internal policies that deal specifically with privacy concerns. These include policies on record linkage and informing survey respondents, and the microdata release policy. This last policy was developed in the early 1970s, when the revised *Statistics Act* (1971) allowed the release of anonymous information on individuals. A special committee reviews all pro-

Information technology is making data searches easier at Statistics Canada

*Ross Grenier, Director,
StatsCan Online Project
Statistics Canada*

StatsCan Online is controlled and operated by Statistics Canada in partnership with a private technology company. It provides direct-dial access to detailed data that can be downloaded in a variety of formats: text, tables, and specialized databases. The objectives of StatsCan Online are to improve the accessibility, timeliness and usability of data, including metadata; to increase the breadth and depth of data holdings available to users; to reduce the unit cost of data retrieval to the client; and to improve the cost-to-revenue ratio of data dissemination to the Agency. In the future, Online plans to include mapping capability as well as information from other government departments, and to link to the Internet. Although not officially launched until April 1996, almost 200 clients used Online while it was still in the market testing phase.

*Louis Boucher, Assistant Director,
Dissemination Division
Statistics Canada*

Statistics Canada's Advisory Services receives about 600,000 requests per

year from external users, library staff and Statistics Canada analysts. Using a Windows-based search and retrieval system (known as "Information on our Products and Services" – IPS), employees are able to identify current information about products and services. IPS enables organized and efficient inquiry searches of all "registered" products and services, as well as articles and survey background documentation. Users can query by word, title, subject, author, and date, among other variables. Once the search is completed, IPS compiles comprehensive lists of products and services, allowing staff to download the information, provide lists to clients, or create mini-catalogues.

At the moment, IPS is an internal tool primarily serving staff in Advisory Services and the Statistics Canada library. Plans for the future include making it available to the public via CD-ROM and possibly the Internet. This will hasten the inclusion of more information, including a thesaurus to cover colloquial terms not found in official agency terminology, and linkage to other metadatabases.

posed releases of microdata, and authorizes their release only if two basic conditions are met: they have substantial analytical value, and all reasonable steps have been taken to prevent identification of individual respondents.

Ms. Desramaux acknowledged that people are worried about the power of technology to link data and create massive databases. However, she believes that the legislative-policy framework has been an effective tool in maintaining privacy. Statistics Canada continues to enjoy good response rates, and a 1992 survey on privacy showed that only 14% of respondents were apprehensive about providing personal information to the Agency.

Part 4: Partnerships to serve clients better

*Jan Kestle, President,
Compusearch*

Ms. Kestle described the benefits of a public and private sector partnership from the company's point of view: providing customers with one-stop shopping; enjoying a statistical "license" that enables the integration of data from many different sources; expanding the pool of statistical and analytical expertise; generating increased demand for products; and responding more quickly to the market.

There is a negative side to such a partnership, though, including customer complaints about the

high cost of data stemming from cost-recovery policies at the source statistical agency; controversy about a good collected at public expense being used for profit; competition for clients between the partners; difficulty policing agreements between the partners and their customers; and control of "data leakage" (the piracy of enhanced data).

Ms. Kestle believes that in future customers will demand more value added to the data they purchase; that data will become more accessible though not necessarily better understood by its users; that licensing agreements will be used more extensively to control data piracy; that partnerships will expand in response to the market; that the number of "virtual companies" will increase, making data control and licensing agreements more difficult to police; and that data enhancement costs will continue to grow. All this will necessitate closer relationships and clearer communications among data suppliers if they are to continue enjoying the benefits of their partnerships.

*David Roy, Director,
Marketing Division
Statistics Canada*

Forming partnerships is now a common strategy in the information industry. Because Statistics Canada's strengths are high quality data and analysis, as well as its credibility as a data supplier, the complementary strengths of potential partners would include the ability to solve dissemination problems, to develop sales and distribution networks, and to take risks.

Statistics Canada is currently developing a dissemination framework and network. The next steps

include launching StatsCan Online, overhauling the CANSIM database (which will become the core data warehouse), and converting more publications to electronic formats. To this end, the Agency will adopt partners able to provide online gateways, to co- and re-publish, to develop delivery technologies and to design new products.

*Anne Foster, Senior Vice-President,
Carswell and Thomson
Professional Publishing*

Ms. Foster noted that business partnerships are often compared to arranged marriages of the fifteenth century. In a successful alliance, partners can secure new opportunities; in an unsuccessful alliance, they can lose control of their products, their information or their area of expertise. She identified three factors as critical to the success of partnerships in the information industry: the partners' clarity of intent, or the reason for the partnership; their integrity, or commitment to honesty and plain-dealing; and their interests, which are not the same as intent and must therefore be clearly stated and understood.

Ms. Foster said government and the private sector share only the same intent, which is a healthy economic environment. Thereafter, the similarity ends. The government's integrity rests in not abusing its power, such as using copyright to exclude access to information; the private sector's integrity lies in respecting both the skills and the restrictions faced by the government partner. The government's interest lies in disseminating information for the public good, while the private sector's lies in publishing for profit. Having different goals means that the interests must be identified clearly so that partners understand each other.

*Peter Brandon, Partner,
Synovators Ltd.
Editor/Publisher, "Electronic
Information Partnerships"*

According to Mr. Brandon, the world in which the information industry operates is as chaotic as Alice's game of croquet with the Queen of Hearts: the mallets, the wickets and the croquet balls are all live animals, constantly shifting position and changing the rules of the game. Despite this chaos, he believes that new rules for partnerships in the Information Age are emerging.

Partnerships are struck for different purposes — governance, advisory, delivery — and so require different rules. Those established to distribute information should be reinvented because distribution costs are fast approaching zero, and the opportunities to make a living in the field are shrinking.

Partnerships must tap the core strengths of the partners to mutual advantage, and be prepared to rely more on understanding, ethics and codes of conduct than on legal contracts. (Traditional legal concepts may become difficult to enforce as new forms of intellectual property are developed.)

The new partnerships will blur the lines between the company's internal and external operations as firms seek partners to provide goods and services, rather than generating them from within. They will also require more and faster sharing of information, values and expectations. Nor must partners forget that their alliance draws legitimacy from the power of the individual firms.

Mr. Brandon concluded by observing that firms will have to recognize that the human relationship between partners is more important than the technology involved.

Summary

Gordon Brackstone, Assistant Chief Statistician, Informatics and Methodology Statistics Canada

In a brief summary of the three-day symposium, Dr. Brackstone noted that two overriding themes had emerged. The first was technological: the effect of computing power on the collection, processing and management of data, and the effect of telecommunications on the way the data are distributed. The second was financial: the challenges faced

by statistical agencies required to do more with fewer resources, and the extent to which these agencies must cover their costs through data dissemination.

Proceedings of "Symposium 95: From Data to Information Methods and Systems," the 12th Annual International Symposium on Methodology Issues, will be available in summer 1996. Complete coverage of all papers presented is provided. To order, contact Jean-Louis Tambay, at (613) 951-6959; or fax (613) 951-3100.

Note

1 A microsimulation model is designed to predict the outcome of certain events on individuals with particular characteristics. It does this by creating a synthetic person based on characteristics observed in real persons, and then applying a mathematical model that simulates the probability that specified conditions or events will occur. For example, a simple microsimulation model could be used to predict the likelihood that person A will be a smoker, given the smoking behaviour observed in the general population.



What's new?

■ JUST RELEASED

■ *New data on CPP beneficiaries*

In May 1995, Statistics Canada conducted the Canada Pension Plan (CPP) Disability Beneficiaries Survey. The purpose of the survey, sponsored by Human Resources Development Canada, was to develop a demographic profile of CPP beneficiaries, and to collect information to evaluate the CPP disability program. (Beneficiaries of the Quebec Pension Plan and residents of the Yukon and Northwest Territories and those outside Canada were not covered.)

In addition to demographic data and information about the nature of the disability, data were collected on educational attainment, literacy skills, work-related training courses and vocational rehabilitation; employment history, desire to work, barriers to work and the need for disability-related work accommodations; as well as income, source of income and adequacy of income. Information about the level of service provided, and suggestions for improving the program, were also gathered.

Results of the Canada Pension Plan (CPP) Disability Beneficiaries Survey are now available. For more information, call Paul Labelle at (613) 951-6802, or fax (613) 951-0562. □

■ *Actuarial reports for public pension plans allay some concerns*

Actuarial evaluations of Canada's contributory public pension program – the Canada and Quebec Pension Plan (C/QPP) – were completed in December 1995 with the release of *Analyse actuarielle du Régime de rentes du Québec au 31 décembre 1994*. This document followed the release of the *Canada Pension Plan Fifteenth Actuarial Report as at 31 December 1993*, tabled in the House of Commons in February, 1995.

The reports challenge some misconceptions by examining the effects of important changes that have taken place since the previous valuations. They assess the financial implications of different economic conditions, demographic profiles and other relevant circumstances (for example, growing CPP disability benefits and the effects of AIDS on mortality rates). Projected costs are based on various assumptions, such

as population aging, changing fertility and mortality rates, fluctuations in immigration, and annual increases in prices and employment income. Both reports recommend that the ministers of finance responsible for the respective programs consider changes in the current employer/employee contribution schedules. In fact, the Chief Actuary for the CPP estimates that if the current schedule of increases in the CPP contribution rate is not changed, its account (the accumulated savings) will be exhausted by the end of 2015.

Some key findings of the reports follow:

- Even though future generations will make higher contributions to the CPP, they will still receive more in benefits than they pay in contributions: over five dollars in benefits for every dollar contributed.
- The suggested changes in QPP contributions – which, when implemented, will raise the combined employer/employee rate from 5.6% in 1996 to 13% in 2023 – will safeguard the viability of the plan. It will maintain the intended reserve of at least twice the amount of annual expenditures.
- In 1995, disability benefits represented just 9% of all QPP payments, but accounted for nearly 20% of all CPP expenditures.

For copies of *Analyse actuarielle du Régime de rentes du Québec au 31 décembre 1994*, contact Direction des communications et renseignements, Régime de rentes du Québec at (418) 644-7746. Information about *Canada Pension Plan Fifteenth Actuarial Report as at 31 December 1993* can be obtained from Bernard Dusseault, Chief Actuary, Office of the Superintendent of Financial Institutions at (613) 990-7577. □

■ *Business and social data for small geographic areas available on CD-ROM*

In response to growing demand for data on small geographic areas, Statistics Canada has developed the Small Area Business and Labour Database (SABAL). SABAL combines a wide variety of economic and social statistics for approximately 140 urban areas and sub-provincial regions, in addition to national, provincial and territorial data. (Some data are not available at all geographic levels.) And since SABAL carries five years of annual data, users can examine trends and assess developments over time.

Among the economic and business data sources currently included in SABAL are the Consumer Price Index and the Business Small Area file (based on administrative data from Revenue Canada); other data include retail trade statistics, building permits and housing starts, and manufacturing industry figures. Social statistics are drawn from the Census of Population, Labour Force Survey, Survey of Family Expenditures, and Survey of Consumer Finances; also included are data on taxfilers and on education and training.

The Windows-based IVISION BROWSER provided with SABAL – with its charting, mapping and pivoting capabilities – is ideally suited to exploring the database's multiple dimensions. Using SABAL's "broad" dimension, analysts can examine a characteristic across several geographical areas; for example, they can compare changes in average family income in Montreal, Toronto and Vancouver over the past five years. But it is the "deep" dimension that analysts will probably find most valuable, since it allows users to develop a detailed economic and social profile of a specific area. For example, SABAL shows that in Halifax

- the 1995 labour force participation rate (percentage of working-age population in the labour force) was 68.1%, while the annual unemployment rate was 8.9% (Labour Force Survey). Average household income for 1994 was \$48,860, up 6% from 1990 (Survey of Consumer Finances);
- in 1995, an estimated 57% of households owned their own home, and of these homeowners 22% owed nothing on their mortgages. Of the majority of families with an automobile (71%), an estimated 18% owned more than one (Household Facilities and Equipment Survey);
- approximately 2,080 housing starts were recorded in 1995, down from 2,460 the year before. However, the value of commercial building permits was up 8% (Housing Starts, Building Permits);
- total annual retail sales increased by 11% in 1993 to a level approaching \$2.46 billion. This reversed a declining trend between 1989 and 1992 that saw retail sales fall by 11% (Retail Trade).

The Small Area Business and Labour Database, with IVISION platform, is available on CD-ROM (Catalogue no. 61F0056XCB). For more information, contact the nearest Statistics Canada Regional Reference Centre, or call the National Inquiries Line at 1 800 263-1136. □

■ *Time-use report shows Canadians work 9 to 10 hours a day*

Men and women work an equal number of hours in an average day; they just split their time differently between paid and unpaid work. This is one of the key findings in a recently released analytical report on the 1992 General Social Survey on Time Use.

As Time Goes By explores the activity patterns of Canadians aged 15 and over. It portrays an average day, dividing it into paid work, unpaid work (household chores, family care, shopping and volunteer work), educational activities, personal care (sleeping, eating, washing, etc.) and leisure. By analyzing the activities of different age groups, the report provides an overview of the changing roles, behaviours and time-related stresses over the average person's lifetime – as a student, a paid worker, a spouse and parent, a mature adult approaching retirement and a senior citizen. The report also documents differences between men and women in the time spent on selected activities.

Each chapter presents a brief demographic portrait of a specific age group, followed by an overview of the group's activities in an average day, and a more detailed examination of the time devoted to various activities. Special emphasis is placed on issues of particular relevance to the group; for example, the relative stresses of high school and postsecondary students, and the change in their daily activities as they enter the job market; the time crunch faced by parents of young children; the effect of an empty(ing) nest and the transition to non-employment among 45 to 64 year-olds; and the unpaid work of seniors.

Following are some of the report's findings about the hours Canadians spend on total work – defined as paid work, unpaid work and educational activities. The hours are averaged over a seven-day week, and, with the exception of youths, all findings refer to persons in full-time paid employment.

- Young adults recorded the widest range of hours spent working, with 18 to 24 year-old women employed full time devoting the most time (9 hours a day) to total work activities. Their hours were almost matched by male students the same age, while male students aged 15 to 17 spent the least time working – 6 hours, or about 1.5 hours less than any other teen or young adult.
- Among 25 to 44 year-olds, unmarried men and women spent about 8.5 hours on total work activity, although men (at 6.9 hours) spent one hour more than women on paid work.

- Married couples aged 25 to 44 without children spent about 9 hours a day on total work activities, with men and women reporting a similar split between paid (7 hours) and unpaid (2 hours) work. Parents worked more hours than childless couples: fathers averaged 6.6 hours paid and 3.2 hours unpaid work, while mothers averaged 5.3 and 4.8 hours, respectively.
- The total work load does not diminish as Canadians reach middle adulthood (age 45 to 64): married men spent almost 9 hours working (about 7 hours paid and 2 unpaid), while married women spent almost 10 hours (about 6.5 hours paid and 3.5 unpaid).

As Time Goes By (Catalogue 89-544-XPE) is available for \$40 from any Statistics Canada Regional Reference Centre or from Statistics Canada, Operations and Integration Division, Circulation Management, 120 Parkdale Avenue, Ottawa K1A 0T6; fax (613) 951-1584 or call toll free 1 800 267-6677.

N.B. Since the early 1970s, many countries have become interested in adopting a more integrated view of human activity that values all work, whether it is market (paid work) or non-market labour (unpaid work). See "What's new?", Spring 1996 for a review of *Households' Unpaid Work: Measurement and Valuation*, an assessment of trends in unpaid work from 1961 to 1992. □

■ **Wide variety of labour-related data collected by General Social Survey in past decade**

In the face of declining budgets, Statistics Canada has been obliged to reduce the frequency of the General Social Survey (GSS). Starting with the third survey on time use in 1998, the GSS will adopt a two-year rather than one-year cycle.

Each cycle of the GSS contains three components: classification, core, and focus. The classification component of each cycle consists of standard questions that help define population groups; that is, age, sex, education, main activity in past 7 days and past 12 months, paid work activity of respondent and spouse, and individual and household income. The core content, which monitors changes over time, covers one of five subject areas and is repeated every fifth cycle: health and social support, time use, personal risk, education and work, and family. The focus component provides information about specific policy issues of current or emerging interest; its topic varies with each cycle and is not usually repeated.

During its first 11 years, the GSS addressed a broad range of social issues, and although some were not directly related to employment (for example, personal risk, family, and social support), each survey did collect data on work-related characteristics. Below is a brief description of completed GSS cycles. Variables that may be useful to readers interested in labour and income issues are highlighted.

1985: Cycle 1, Health

Unpaid help given to projects outside the household (volunteer work); unpaid work activities in own household

Focus: Social support for the elderly

1986: Cycle 2, Time use and social mobility

Education and work of both parents when respondent was 15; information on respondent's first job after completing education

Focus: Language use

1988: Cycle 3, Personal risk

Accidents and criminal incidents at work, including economic and health consequences

Focus: Victim services

1989: Cycle 4, Education and work

Educational history, including current activity and future plans; work history before and after completion of education; employment history in 1984, 1988 and 1989; employment experience of the retired (past 5 years); employment experience of persons not in the labour force (past 5 years); union membership and hours of union activity

Focus: None

1990: Cycle 5, Family and friends

Unpaid help received and given outside the household; unpaid work activity in own household

Focus: None

1991: Cycle 6, Health

Job benefits; occupational health

Focus: Various health topics

1992: Cycle 7, Time use

Unpaid help given outside the household; unpaid work activity in own household

Focus: Cultural, sport and unpaid work activities

1993: Cycle 8, Personal risk

Same as Cycle 3 (1988)

Focus: Alcohol and drug use

1994: Cycle 9, Education and work

Same as 1989 plus job benefits; work environment stress; work activities before and after retirement; work interruptions of 3 months or more in past 5 years; computer use; unpaid work

Focus: Transition into retirement

1995: Cycle 10, Family

Work interruptions of 6 months or more since first started working; attitudes toward combining paid work and family activities; unpaid work

Focus: Effects of tobacco smoke

1996: Cycle 11, Social support (in progress)

Effect of care-giving on employment status and career; exchanges of help related to long-term health limitations or temporary difficulties (including paid and unpaid exchanges provided by individuals or organizations)

Focus: Tobacco use

Contact Ed Praught at (613) 951-9180 for further information about Cycles 1, 3, 6, 8 and 11; Ghislaine Villeneuve at (613) 951-4995 for Cycles 2, 5, 7 and 10; and Pierre Turcotte at (613) 951-0878 for Cycles 4 and 9. □

■ **Analytical Studies Branch research paper series**

Alternative Measures of the Average Duration of Unemployment

M. Corak and A. Heisz

Research Paper Series no. 83

The authors examine an alternative measure of the average duration of unemployment, testing its usefulness against the standard measure currently released by Statistics Canada. The authors conclude that the alternative presented is a valuable complement to the current indicator.

The standard estimate of average duration of unemployment, based on the monthly Labour Force Survey (LFS), is derived from a sample of individuals who are currently unemployed, and measures the time that they have been unemployed up to the LFS reference week; that is, the standard statistic is the average duration of unemployment for those unemployed at the time of the survey. Because only "in-progress" (and therefore incomplete) spells are sampled, the statistic probably underestimates the length of the complete spell; conversely, because the likelihood of an unemployed individual's being surveyed depends on how long that person has been unemployed, those experiencing short spells may be under-sampled, meaning that the duration of the spell will probably be overestimated. When the second (sampling) bias outweighs the first (duration) bias, the average incomplete duration of unemployment will be greater than the average complete duration.

The alternative statistic developed in this paper calculates the complete length of the unemployment spell for a cohort of individuals who begin their unemployment at the same time, thus controlling for both duration and sampling bias, as described above. (It is assumed that the same economic conditions continue throughout the entire spell of unemployment.) Comparing the two statistics, the authors found that over the period 1977 to 1993, the official measure of incomplete spells estimated the average duration of unemployment to be 18.7 weeks, while the alternative measure estimated it to be 16.9 weeks.

Another difference between the two measures concerns their usefulness as a cyclical indicator. Like the unemployment rate, the alternative statistic of completed spells corresponds to peaks and troughs in labour market conditions – declining during recovery and expansion and increasing immediately with the onset of recession. In contrast, the standard measure of incomplete spells lags the business cycle.

Advanced Technology Use in Canadian Manufacturing Establishments

J. R. Baldwin and B. Diverty

Research Paper Series no. 85

Previous work by Baldwin has shown that technology adoption is strongly related to success. Given this link, it is important to discover which plants are more likely to use advanced technologies. This paper identifies selected factors that may account for differences in technology use at the plant level. It draws on data collected about the use of advanced manufacturing technologies (AMTs) by the Survey of Manufacturing Technology in March 1989. Computer-aided design and engineering, flexible manufacturing systems, programmable controllers, robots, computer-integrated manufacturing, and artificial intelligence systems were among the 22 AMTs identified by the survey.

The variables chosen to explain the incidence and intensity of technology use include plant-specific characteristics – such as recent plant growth, plant size and age – to represent the general capability of establishments to absorb technologies. Foreign ownership is interpreted as an indicator of the transfer of scientific knowledge from one country to another, while research and development activities (R&D) reflect a plant's "corporate culture," that is, its predisposition to adopt technological innovations.

Results of the multivariate analysis on the incidence of advanced technology use – plants in which at least one of the 22 identified AMTs has been adopted – are presented below.

- The two most important factors determining technology use are the size of the plant, with medium-sized enterprises being most likely to use advanced technology, and the plant's growth in value of shipments. These findings support the hypothesis that the more successful plants are likely to include new technology as part of their business development strategy.
- Plants created in the 1970s make greater use of advanced technology, presumably because they are less constrained by old equipment and inflexible capital than are older plants.
- Manufacturing establishments in Central Canada and British Columbia are more likely to be using an AMT than those in the Prairies and the Maritimes.
- R&D activities significantly increase the probability that a plant will adopt advanced technology.

Intensity of technology use is measured as the number of advanced technologies used in the production process; in this case, the variable can range between 0 and 22. The multivariate analysis shows that

- the intensity of technology adoption increases with the plant's employment size and with its growth in shipments;
- foreign ownership, location and age of the plant are significantly related to the number of technologies adopted;
- technology intensity increases with the size of an enterprise, as multi-plant firms enjoy scale advantages – the pooling of resources, capital information, experience and expertise – that allow them to use a larger number of technologies;
- R&D signals more intensive use of advanced technology, with plants conducting R&D using between 0.9 and 1.2 more technologies, on average, than plants that do not.

The results of this paper broadly conform to the pattern of technology adoption that has been reported in studies carried out in the United States.

Technology Use, Training and Plant-Specific Knowledge in Manufacturing Establishments

J. R. Baldwin, T. Gray and J. Johnson
Research Paper Series no. 86

In 1993, approximately 92% of Canadian manufacturing shipments were produced in establishments using advanced manufacturing technologies (AMTs), and 69% of shipments by establishments using at least five technologies. Thus, the use of advanced technology in the Canadian manufacturing sector has transformed

production, transportation and communication systems and, consequently, the demand for skilled workers. Indeed, most managers responding to the 1993 Survey of Innovation and Advanced Technology expected the introduction of advanced technologies to increase the skills required of their workers.

Skilled workers can be acquired through new hiring or through training the existing workforce. The 1989 Survey of Manufacturing Technology shows a clear link between an increase in training and the number of AMTs in use, which suggests that employers prefer training to new hiring when the skills required are highly plant-specific.

The authors performed a regression analysis that related the intensity of training to the firm's other characteristics, including its use of AMTs, with emphasis on characteristics associated with success. The following results were noted:

- The probability that a plant will train its workers increases as the number of technologies in use increases.
- Firms pursuing R&D programs and operating in an innovative industry (both being indicators of the ability to learn and adapt) are more likely to engage in training. Growing and/or older firms (characteristics associated with a firm's past success) are also positively associated with training.
- In general, training related to technology more specific to the plant – a certain type of machine, for example – takes place on the plant floor, while that for more generic technology takes place in a classroom.
- Adopting new technology generates more investment in human capital, as measured by higher training costs, since it creates a need for more training than was previously carried out by the firm.
- Larger plants tend to use more technologies, to integrate more technologies, and to use more sophisticated technologies; therefore, they have greater skill and training requirements.

The Intergenerational Income Mobility of Canadian Men

M. Corak and A. Heisz
Research Paper Series no. 89

Assessing the effect of parents' income on the future income of their children is important for two main reasons: families with children may constitute a disproportionate share of families with persistently low income; and being raised in a low income family may predispose individuals to a lifetime of low income.

Intergenerational income mobility has been the subject of many studies in the United States and Europe, but very little work has been done in Canada. The study conducted by the authors differs from previous work in that it employs income data from administrative sources rather than from longitudinal surveys; hence, the analysis is based on a very large sample that is not subject to the problems of attrition or reporting error associated with household surveys. A cohort of males aged 16 to 19 in 1982, who filed an income tax return at some time between 1982 and 1986 while still living at home, and who had a father present, are analyzed. The incomes of these sons are traced forward to 1993, when they were 27 to 30 years of age.

Results of the analysis seem to show more intergenerational income mobility in Canada than in the United States and the United Kingdom. The distribution of income by quartiles (highest 25% to lowest 25%) shows that almost 36% of sons in the top income quartile had fathers in the top quartile, versus 40% in the United States and 50% in the United Kingdom. Similarly, 33% of sons in the bottom quartile (42% in the United States and 44% in the United Kingdom) had fathers in the bottom quartile.

A closer examination of the distribution of income using deciles (highest 10% to lowest 10%) indicates that young men with fathers in the upper middle income deciles fared slightly better than those with fathers in the lower middle income deciles. However, young men with fathers in the top decile are found to have an income almost 40% higher than those with fathers in the bottom decile; their income was also about 15% higher than those of young men with fathers in the middle income deciles.

The authors conclude that the extremes of the income distribution are "sticky." Young men born to fathers in the top income quartile are much more likely to be at the top as well; the same is true of those with fathers in the bottom quartile. Furthermore, the income of young men with fathers from the upper half of the income distribution tends to rise, while that of men with fathers from the lower half tends to fall.

To order studies in the Research Paper Series, contact your nearest Statistics Canada Regional Reference Centre, or write to Publications Review Committee, Analytical Studies Branch, Statistics Canada, 24th floor, R.H. Coats Building, Ottawa, Ontario K1A 0T6. Or phone (613) 951-1804; fax (613) 951-5403. □

■ UPCOMING CONFERENCE

■ *Labour market institutions and outcomes: cross-national perspectives* *September 4-7, 1996. Burlington, Ontario.*

"Labour market institutions and labour market outcomes: Cross-national perspectives" – the inaugural conference of the Canadian International Labour Network (CILN) – will adopt a multi-disciplinary and multi-national approach to the topic. Speakers include labour economists, political scientists, industrial relations researchers and sociologists from Canada, the United States and seven other OECD countries.

CILN is a research venture between McMaster University and the Social Sciences and Humanities Research Council of Canada. Using administrative and survey data, researchers are working to assess the effect of labour market institutions such as labour standards, collective bargaining systems and social programs on wage distribution, unemployment, and the allocation of resources within families. CILN's mandate extends the analysis of these issues to several countries.

Further information on the conference is available on the Internet: <http://www.socsci.mcmaster.ca/~ciln>. Or e-mail to ciln@mcmaster.ca. Or fax (905) 521-8232. □

Key labour and income facts

We're changing!

In an effort to better serve its readers, *Perspectives* recently introduced a new, more analytical format for presenting "Key labour and income facts." The table providing up to 2 years of data has been replaced by some graphs based on selected indicators. The indicator data (on paper or diskette), along with supporting documentation, are still available upon request (see *Data*).

The redesign of this department should be reasonably complete by Autumn 1996. In the meantime, we invite suggestions for what you would like to see in "Key labour and income facts."

The data for the labour and income indicators are drawn from 11 sources, including published and unpublished annual data. These indicators, covering labour market, earnings, income and other household topics (for Canada, the provinces and territories), are updated quarterly. For a list of the specific indicators, consult the Winter 1995 issue of *Perspectives on Labour and Income*.

Sources

Currently, the indicators are derived from the following sources:

Labour Force Survey

Frequency: Monthly

Contact: Doug Drew (613) 951-4720

Survey of Consumer Finances

Frequency: Annual

Contact: Kevin Bishop (613) 951-2211

Absence from Work Survey

Frequency: Annual

Contact: Nancy Brooks (613) 951-4589

National Work Injuries Statistics Program

Frequency: Annual

Contact: Horst Stiebert (613) 951-4044

Help-wanted Index

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Unemployment Insurance Statistics Program

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Survey of Employment, Payrolls and Hours

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Major wage settlements, Bureau of Labour Information (Human Resources Development Canada)

Frequency: Quarterly

Information: (819) 997-3117

Labour income

Frequency: Quarterly

Contact: Ed Bunko (613) 951-4048

Household Facilities and Equipment Survey

Frequency: Annual

Contact: Penny Barclay (613) 951-4634

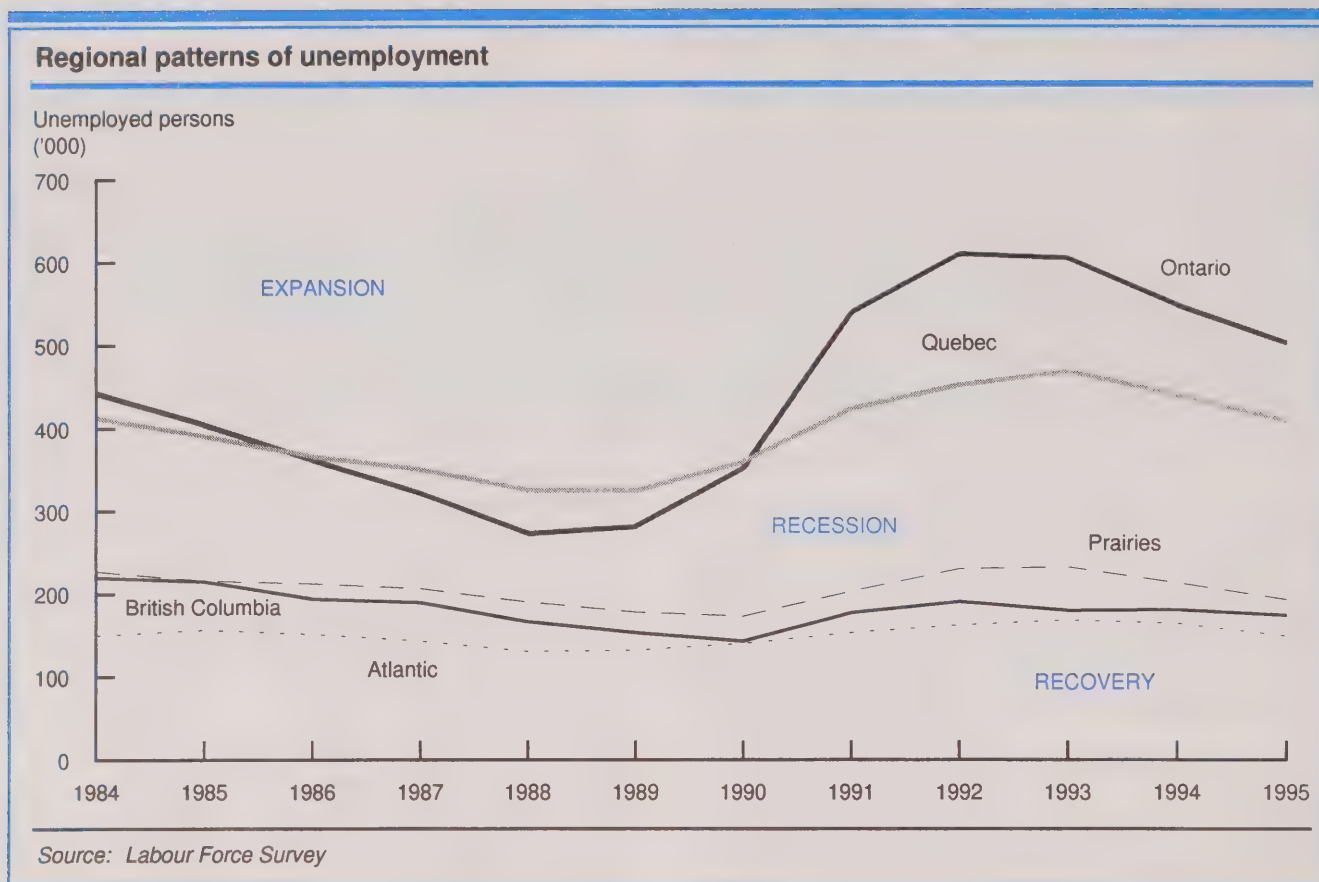
Small area and administrative data

Frequency: Annual

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Data

Previously, the printed table in each issue provided, at the most, 2 years of data for each indicator. A longer time series (generally 10 years or more) for the set of indicators can be obtained, on paper or diskette, at a cost of \$50. A document explaining the indicators is also available. In addition, work is in progress to make the indicator data available on the Internet. For further information, contact Joanne Bourdeau at (613) 951-4722; fax (613) 951-4179.



Changes in unemployment levels over the 1984 to 1995 period reveal a wide range of sensitivities to the business cycle, reflecting economic differences between the regions.

Unemployment fluctuations were pronounced in Ontario: during the expansion following the recession of the early 1980s, the level of unemployment fell from 442,000 in 1984 to 272,000 in 1988 (down 38%); then, as a result of the 1990-92 recession, it more than doubled to reach 609,000 in 1992, only to drop again during the recovery of the mid-1990s. A similar but less marked pattern can be observed for Quebec. Such sharp unemployment contractions and expansions reflect the high concentration of manufacturing indus-

tries in Central Canada, which are highly sensitive to economic fluctuations.

The pattern is dramatically different in the Atlantic and Western provinces. These regions, whose economies are more reliant on resource-based exporting industries (especially grain farming in the Prairies and mining and logging in British Columbia) and much less affected by the volatile manufacturing sector, showed relatively stable levels of unemployment throughout the various phases of the last business cycle.

Average family income after tax, by region



Source: Survey of Consumer Finances

Movements in family income generally mirror regional economic fortunes (as do unemployment levels, which in turn affect family income).

Over the decade examined, the biggest swings in average family income after tax (in constant 1994 dollars) occurred in Ontario, followed by British Columbia and Quebec. In Ontario, average post-tax income increased substantially during the expansionary years of the mid to late 1980s (up 13% between 1984 and 1989), then fell significantly as a result of the 1990-92 recession (down 10% between 1989 and 1993). British Columbia fared best of all the regions; its after-tax income rose until the advent of the last recession (up 7% between 1984 and 1990) when it began to fluctuate. In contrast, income in Quebec was stable until 1988, rose in 1989, then fell 8% between 1989 and 1993. Throughout the period charted, post-tax family income changed little in the Prairie and Atlantic regions. In 1994, family income after tax was on the upswing in Ontario (\$47,500), British Columbia (\$45,900) and Quebec (\$38,900), but slipping slightly elsewhere.

Ontario maintained its top income ranking over the other regions throughout the decade examined; furthermore, the income gap widened considerably in the mid to late 1980s when this region's economy was booming. British Columbia was next,¹ although the income gap between this province and Ontario was as high as \$7,100 in 1989. British Columbia's superior performance during the 1990-92 recession (for example, it was the only region to post continuous employment growth after 1989) narrowed that gap significantly. Average income was consistently lowest among families in the Atlantic provinces (79% that of families in Ontario in 1994), followed by those living in Quebec (82%). In the Prairie provinces, average family income after tax generally held the middle ground.

1 Except in 1985.

In the works

Here are some of the topics to be featured in upcoming issues

■ The labour market: Mid-year review

An examination of trends and developments in the labour market during the first half of 1996.

■ Work absences and compensation

Long absences from work due to illness or accident can lead to financial hardship. This article looks at recent trends in work absences and examines related compensation schemes.

■ Economic well-being of families

A look at the extent to which government transfers to families with children help to keep those families above the low income cut-offs.

■ Gambling: a growth industry?

This article briefly traces the evolution of legal gambling in Canada and examines the growth in employment and revenue (to governments). It also looks at the characteristics of workers and jobs in the industry.

■ Health of the workforce

This study analyzes a selection of health indicators (by age and sex) among working Canadians. Workers with and without employer-sponsored health plans are also compared.

■ Dual earnings, dual pensions?

This article looks at whether the increase in dual-earner families during the 1980s has translated into more dual-pensioner families in the 1990s. It also compares family incomes by number of pensioners.

■ Work absence rates

An update to *Work Absence Rates, 1977-1994* (Catalogue no. 71-535-MPB, no. 7), this insert provides 1995 work absence rates by detailed industry, occupation and age for both sexes, as well as provincial and regional rates.

PERSPECTIVES ON LABOUR AND INCOME

The quarterly for labour market and income information

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The content of *Perspectives* is determined by reader interest, so it is important for us to know your needs. Please take a few minutes to answer this questionnaire and return it to us. Thank you.

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On a scale of 1 (not useful) to 5 (very useful), please rate the following departments and articles:

<i>Forum</i>	1	2	3	4	5	<i>What's new?</i>	1	2	3	4	5
<i>Highlights</i>	1	2	3	4	5	<i>Key labour and income facts</i>	1	2	3	4	5

International survey on adult literacy	1	2	3	4	5
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The marginally literate workforce	1	2	3	4	5
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Pension fact or fiction?	1	2	3	4	5
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A job to die for	1	2	3	4	5
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Do earnings rise until retirement?	1	2	3	4	5
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The future of data dissemination	1	2	3	4	5
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In general, do you find the topics

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What subjects would you like to see covered in future issues?

How do you feel about the following aspects of *Perspectives*:

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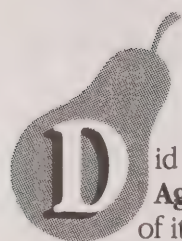
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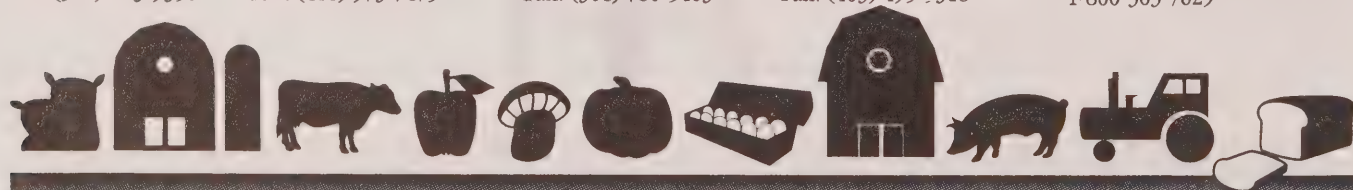
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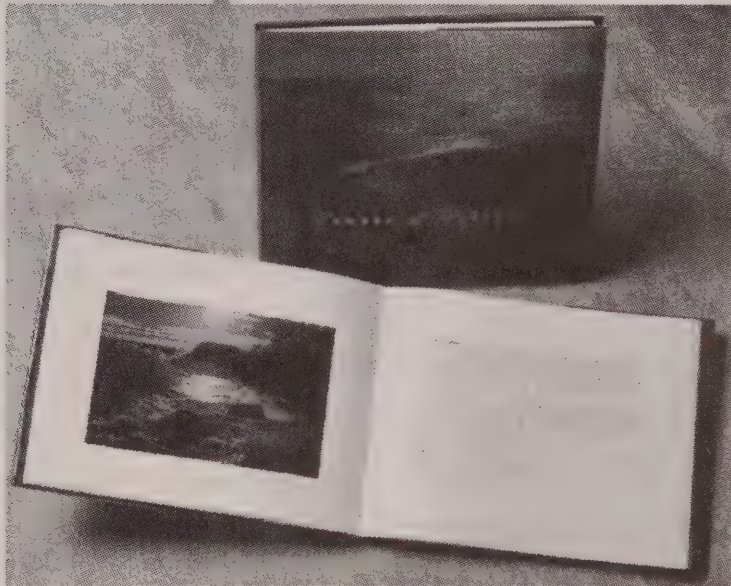
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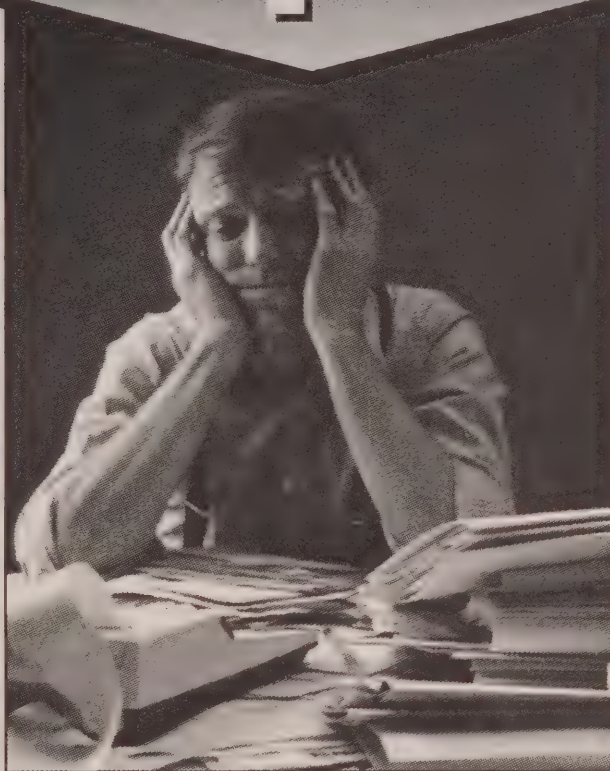
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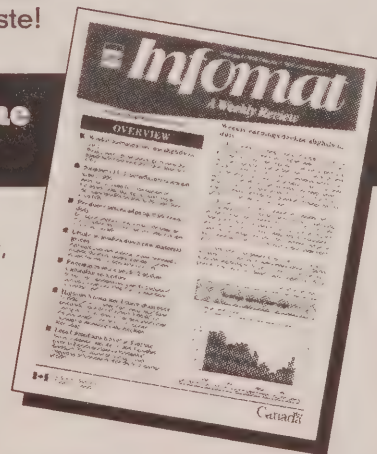
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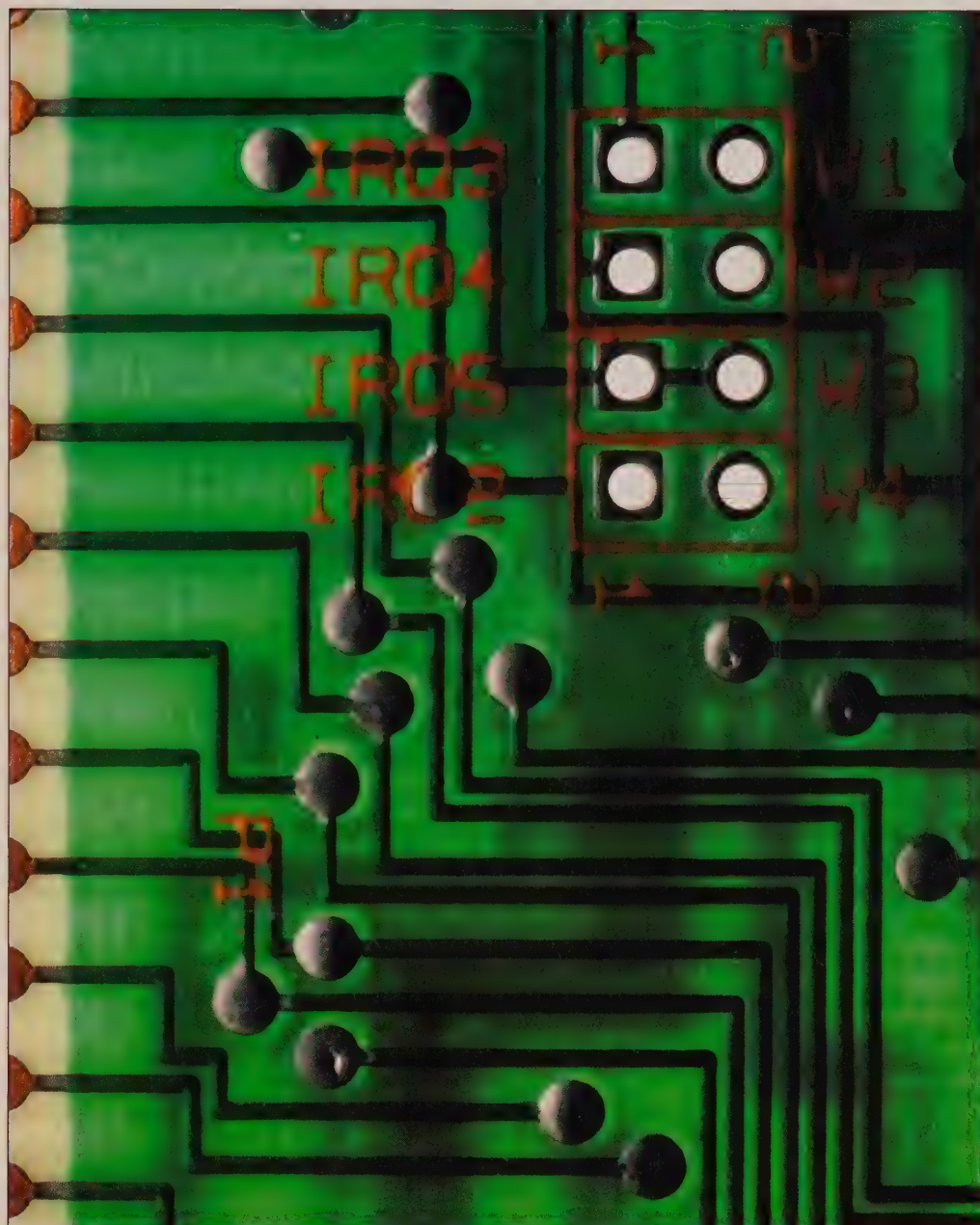


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PERSPECTIVES

ON LABOUR AND INCOME

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Perspectives on Labour and Income (Catalogue no. 75-001-XPE; aussi disponible en français: *L'emploi et le revenu en perspective*, n° 75-001-XPF au catalogue) is published four times a year under the authority of the Minister responsible for Statistics Canada. ©Minister of Industry 1996. SUBSCRIPTION RATES: \$56 a year in Canada, US\$68 in the United States, US\$80 in other countries. Single issue \$17 in Canada, US\$21 in the United States, US\$24 in other countries. ISSN: 0840-8750.

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Indexed in the *Canadian Index*, *Canadian Periodical Index*, *P.A.I.S. International* and *Sociological Abstracts*, and available online in *Canadian Business and Current Affairs* and *Employee Benefits Infosource*. Also indexed in French in *L'Index de l'Actualité* and *Point de Repère*.

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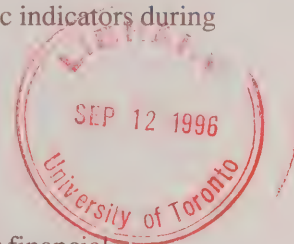
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The number of dual-earner couples increased in the 1980s, but has this translated to more dual-pensioner families in the 1990s? The growth of husband-wife couples with both spouses receiving private pension benefits is compared with that of their single- and no-pensioner counterparts. Sources of pension income are also analyzed.

S-1 Work absence rates, 1995

Ernest B. Akyeampong

An update to *Work Absence Rates, 1977 to 1994*, this section presents 1995 absence rates of full-time paid workers by industry, occupation, province, age and sex. The annual incidence of absence, the inactivity rate and the number of days lost per worker for illness or disability and for personal or family responsibilities are provided.



PERSPECTIVES

ON LABOUR AND INCOME

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A look at trends in transfer payments to families from 1980 to 1994. How have these transfers responded to changes in business cycles and how effective have they been in raising two-parent and lone-parent families above the low income cut-offs?

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■ Someone once said, "You can never have too much of a good thing." In a similar vein, anyone disseminating data to meet users' needs might suggest, "The geographic area for data can never be too small." At least some users will want data for smaller areas than the statistician can provide. Statistics Canada strives to provide as much detail as possible, yet the demand never fails to exceed our capacity to provide. The principal reasons for this are limits on reliability and the absolute necessity to protect respondent confidentiality. For example, when the data come from a sample survey, the sample sizes that our budgets (and respondent co-operation) will allow are often too small to provide the sub-provincial (sometimes even the provincial) data often requested. In the case of business surveys, considerations of confidentiality often preclude the publication of geographic details since there may be only one firm in a specific industry in that area.

In light of this, it is hardly surprising that there is always a demand for more geographically specific information than *Perspectives* articles contain. I say "information" deliberately. The demand extends beyond a requirement for a breakdown of area data; it calls for a corresponding analysis for such areas. We have considered how *Perspectives* might respond to these requests.

It has been suggested, for example, that for every article containing data at the Canada level, a set of tables should be available on the day of publication showing the same data for each of the provinces and (where applicable) the territories. In an ideal world, within the constraints of reliability and confidentiality, this is exactly what we would do. Regrettably, this would be both unmanageable and costly.

Since most articles in *Perspectives* are based on analysis at the national level, the analysts retrieve the data from the source files at that level. Of course, the analysis almost invariably leads to the need for additional retrievals. In addition, the process of going from the database to the final article often involves further calculations. Then, after several drafts of the manuscript, all data are scrupulously verified.

Performing all these steps on corresponding provincial data for all articles would require far more resources than are now available. As well, the demand for additional geographic details varies unpredictably from article to article. Although we try our best to ensure that every piece is as relevant as possible to our readership, some articles attract far more demand for additional data than others. In certain cases, for reasons of data reliability (or sometimes confidentiality) many of the data points, particularly for the smaller provinces, would simply not be releasable. So some of this extra effort would, in effect, go to waste.

That said, it is worth noting that all divisions responsible for the data used in *Perspectives* articles have highly skilled staff who can turn around cost-recovery requests very rapidly, though probably not immediately and not for everything requested. Also, it is our practice to cite the source for every table and chart, and to include an explanatory box about the data. This should guide you to the appropriate division should you wish to pursue the study at another level of detail. We also include the author's telephone number in the article. *Perspectives* authors are always willing to match those needing additional data with the Statistics Canada personnel best placed to provide them.

Ian Macredie
Editor-in-Chief



We welcome your views on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

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Highlights	1	2	3	4	5	Key labour and income facts	1	2	3	4	5
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The labour market: Mid-year review	1	2	3	4	5
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Work absences and compensation	1	2	3	4	5
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Highlights

■ The labour market: Mid-year review ... p. 9

- This year's employment growth has been only marginally better than that of the first half of 1995. All the growth can be attributed to services as the goods sector has shown little change.
- While 1994 had increases in full-time employment, last year resumed the traditional pattern of growth in part-time employment. The first five months of 1996 returned to higher growth rates among full-time workers; this trend can be sustained only if June's steep decline is reversed in the next few months.
- Employment in Alberta and British Columbia continues to increase, while the Atlantic provinces experience faltering growth in 1996, and Ontario and Quebec show little sustained growth.
- Only adult women have regained the employment rates they experienced in the early 1990s.
- Although labour force participation rates for adult women increased for more than two decades, they have shown no sustained growth since 1991. For adult men and for youths, the participation rate continues to decline.
- Historically, other than during recessions, men's unemployment rate has been lower than that of women. Since the most recent recession, men's rate has remained above women's, although the gap is narrowing. Whether this reflects the lingering effects of the recession, or a more permanent shift in the relative labour market experiences of men and women, remains to be seen.

■ Work absences and compensation ... p. 17

- The rate of prolonged absence from work due to illness or accident declined between 1979 and 1994, from 6.9% to 5.7%.
- Men registered a steep decline in their rate of absence due to illness during the period. Combined with a slight decrease in the rate for women, this drop lowered the overall rate of absence for illness from 4.4% to 3.5%. The absence rate for accidents remained stable because a small decrease for men was balanced by a corresponding increase for women.
- The main sources of compensation for workers absent because of illness are full pay from the employer, group insurance benefits or Unemployment Insurance. Those absent because of accidents are more likely to receive Workers' Compensation, full pay from the employer or group insurance benefits.
- The incidence of no compensation for absences due to illness has declined in both goods and services, as has the rate of no compensation for absences due to accidents in the service sector.

■ Dual-pensioner families ... p. 24

- In the last quarter century there has been a dramatic increase in the proportion of married couple families in which both spouses work. Seven in 10 families with spouses of working age had both spouses working in 1994, compared with only 3 in 10 in 1967. The presence of two earners in the family increases the likelihood that both will accumulate retirement pension benefits, eventually leading to more families with two pensioners.

- Among elderly husband-wife families there has been a significant increase in dual-pensioner families, from 6% in 1981 to 20% in 1994. Single-pensioner families have also increased; they now make up the largest category of elderly families, at 46%. On the other hand, families without pensioners have declined from 54% in 1981 to 34% in 1994.
- Dual-pensioner families received the highest income in 1994, averaging \$56,200; families with no pensioner and no C/QPP recipient fared the worst, with an average of \$21,900. Single-pensioner families averaged \$39,700.
- Pension status affects elderly families' reliance on various income sources. Dual-pensioner families' largest component came from private pensions, which made up 38% of their family income in 1994. For families without a pensioner or C/QPP recipient, 70% of their income was from government transfers.
- Families' income composition changed between 1981 and 1994. For dual-pensioner families, the proportion of pension income increased from 26% to 38%. For families without a pensioner or C/QPP recipient, the contribution of earnings to total income decreased by 10 percentage points; over the same period government transfers increased.

■ You wear it well: Health of older workers ... p. 31

- Most 50 to 64 year-old workers say they are in good shape, with one-quarter of them describing their health as excellent.
- Older working men see doctors more often than do younger working men, and take some kind of medication more often, but they are less likely to take time off work for reasons of illness or injury.
- Older working men are more likely to have chronic health problems (60%) than working men in their thirties (44%). The most common diagnoses for older men are back problems and arthritis or rheumatism; for men in their thirties, allergies and back problems are cited most often.

- Working women aged 50 to 64 are more likely to report chronic health problems than are younger working women. While less than half of full-time workers in their thirties have a long-term health condition, almost 55% of full-time and 73% of part-time older workers have been so diagnosed. Arthritis or rheumatism, and allergies are the most common problems for older women, regardless of hours of work. For younger women working full time, the most common diagnoses are allergies and migraines.

■ A sure bet industry ... p. 37

- In the past decade gambling operations have become commonplace. This small industry has burgeoned to 24,000 employees in 1995 from just 6,000 in 1984. The recent jumps in employment are due mainly to the increase in government-run casino operations.
- Women, youths and part-timers are more prominent in the gambling industry than in non-gambling industries. In 1995, 56% of those employed in gambling were women, compared with 45% in other industries; 59% were under 35 years of age, versus 42%; and 31% worked part time, compared with only 19% in other industries.
- In 1992, 69% of Canadian households bought lottery tickets. One in two low income households bought lottery tickets that year, spending an average of \$149, or 1.2% of their total income, while three in four high income households spent \$266 on average, or 0.3% of their income.
- As recently as 1991, virtually all gambling revenue was derived from lotteries. In 1995, lotteries represented 62% of the total, casinos, 18% and video lottery terminals (VLTs), 20%.
- Net revenue from lotteries, casinos and VLTs has nearly quadrupled since 1985 to \$4.9 billion in 1995. Gambling revenue now makes up 3.8% of the total revenue from taxes and investments for all provincial governments.

■ Transfer payments to families with children

... p. 42

- Transfer payments to families rose steeply during the 1981-82 and 1990-92 recessions. Between 1981 and 1982, transfer payments to two-parent families jumped from an average of \$3,200 to \$4,200; in lone-parent families they rose from \$5,100 to \$6,000. From 1990 to 1993, transfers to two-parent families increased by 22% (peaking at \$5,000); those to lone-parent families rose 20% (to a high of \$8,100).
- In 1980, transfers accounted for 5% of total income in two-parent families and 18% in lone-parent families. By 1994, the proportions had risen to 8% and 31%.
- From 1980 to 1994, an average of 11% of two-parent families had incomes below the low income cut-offs (LICOs); without transfers, the proportion would have been 17%. In other words, transfer payments cut by one-third the number of two-parent low income families. For lone-parent families, an average 54% had incomes below the LICOs; 62% would have been in this position without government transfers. In this case, transfer payments cut the number of low income families by over one-tenth.
- The increase in transfer payments to low income families helped replace shrinking employment and other market income. Between 1990 and 1993, the average market income of two-parent low income families fell 18%, while that of lone-parent families dropped 8%. Even during the expansionary period of 1984 to 1989, market incomes declined more than 2% for two-parent low income families and 3% for lone-parent families.

■ What's new?

... p. 49

- One of two recently released income studies from the Survey of Consumer Finances, *Income After Tax, Distributions by Size in Canada, 1994*, explores how transfer payments and income taxes affect family income. It also considers how they have affected the income gap between lower and upper

income families. The second study, *Characteristics of Dual-Earner Families, 1994*, looks at the growth of dual-earner families and compares their income and earnings with those of families in which only one spouse has earnings.

- Data from the 1995 Homeowner Repair and Renovation Expenditure Survey (HRRS) are now available. According to the survey, homeowners are spending less on improving and maintaining their homes. On average, homeowners spent \$1,660 in 1994, far below the 1989 peak of \$2,200.
- The Analytical Studies Branch has released three research papers. *Productivity Growth, Plant Turnover and Restructuring in the Canadian Manufacturing Sector* examines the extent to which productivity has been enhanced by firm turnover over a 20-year period. According to the study, normal growth and decline, which did not change appreciably in the 1980s, contributed much to productivity growth in the manufacturing sector in the 1970s.

The Evolution of Payroll Taxes in Canada: 1961-1993 outlines the structure of payroll taxes and documents the level, growth and role of each component over the last three decades. These payroll taxes, which include Unemployment Insurance premiums, Canada and Quebec Pension Plan contributions, Workers' Compensation premiums and the health/postsecondary education tax levied by certain provinces, have increased substantially. However, despite this growth, they are still much lower in Canada than in many other western industrialized countries.

Job Creation by Company Size Class: Concentration and Persistence of Job Gains and Losses in Canadian Companies addresses the effect of measurement issues on the question of job creation by firm size and considers various explanations for small firms' ability to create jobs.

- The *Survey of Labour and Income Dynamics Public Use Microdata* CD-ROM was recently released. The background data, collected in January 1993 by the Survey of Labour and Income Dynamics (SLID), consist of information such as marital status, ethnocultural traits, schooling and work. Also included are data on labour market activities and

family changes collected in January 1994, and income information gathered in May 1994. The package, intended for hands-on analysis, also includes the *Microdata User's Guide*, a comprehensive description of the survey's objectives, design, methods and content, and the *SLID Electronic Data Dictionary*, which contains a list of variables and code sets.

- SLID has also published two new research papers. *Family and Work: What Will the Survey of Labour and Income Dynamics Have to Offer?* describes the empirical data that should help explain the choices women make in balancing home, family and work. *The Wage Gap Between Men and Women: An Update*

shows that the male-female income gap closes completely for recent university graduates, while it remains sizeable for the workforce as a whole.

- The Survey of Employment, Payrolls and Hours (SEPH) has recently expanded its use of administrative data. It previously used administrative data on employment and payrolls for small businesses only, and this represented approximately 30% of total employment. With the redesign, the administrative data now also cover medium and large businesses. Administrative data account for about 65% of total employment and survey data contribute the remaining 35%. □

The labour market: Mid-year review

Ian Macredie

At the mid point of 1996 the question we ask is: will this year resemble 1994, whose employment growth showed what the economy is capable of, or will it look like 1995, a year more typical of trends in the 1990s?

Employment grew steeply and steadily in 1994. Perhaps even more remarkably, almost all of this employment growth was full-time. Job gains were so substantial that they induced the first year-to-year increase in average family income since 1989 – hardly the “jobless recovery” so widely reported. This employment growth also created the first sustained decline in the unemployment rate in the 1990s.

The following year was quite another story. Employment growth in 1995 returned to the modest rates that have come to prevail in the 1990s. Growth over the course of the year (99,000) was only 26% of what it had been the previous year. In addition, the rate of part-time job creation exceeded the rate for full-time jobs. While the unemployment rate continued to drift downwards, it did so more slowly than it had in 1994.

The economic environment

The relationship between changes in aggregate economic growth and changes in employment is not fixed through time. Nevertheless, there is a strong correlation historically. So in putting the first half of this year in the context of employment growth of the two previous years, it would be worthwhile to look at concurrent macro economic developments.

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Many of the trends observed in 1995 seem to have continued into this year. However, the June 1996 Labour Force Survey (LFS) results show unexpected reductions in employment (-56,000), particularly full-time employment, and these were concentrated in Quebec. Combined with a relatively small increase of 36,000 people in the labour force, this resulted in a rise in the unemployment rate to 10.0%, well above the 9.2 to 9.7% range to which it had been confined since 1994.

The analysis in this article takes a cautious approach to the interpreta-

tion of the June results and generally treats the first five months of data as indicative of trends for the first half of the year.

This article is based on LFS data available as of July 5, 1996. Unless otherwise noted, monthly data have been seasonally adjusted to provide a better picture of underlying trends. Seasonal movements are those caused by regular annual events such as climate, holidays, vacation periods, and cycles related to crops and production. Seasonally adjusted series still contain irregular and longer-term cyclical fluctuations.

Throughout 1994, growth in gross domestic product (GDP), one measure of economic performance, was quite strong, especially in the last two quarters (Chart A). This rate of growth fell off dramatically

in 1995, followed quickly by reductions in employment growth. GDP growth in the first quarter of this year showed a rate similar to those observed in the last half of 1995.

Chart A
GDP growth in early 1996 continued the pace of late 1995.



Sources: Labour Force Survey, and National Accounts and Environment Division

* Second-quarter GDP figures not available.

Exports seem to be playing an ever more important role in employment creation in Canada, especially merchandise exports. The rapid employment growth in 1994 was linked to overall export growth of 15% over the previous year with a 20% increase in merchandise exports. In 1995, growth rates for overall and merchandise exports were around 12% and 14%. May 1996 merchandise exports were only about 6% higher than those of May 1995, which in turn were 17% above those of May 1994. This falling off does not augur well for employment growth in 1996, although current employment levels, at least in the goods sector, should be maintained.

Employment

The industry dimension

The employment growth in 1994 was the product of exceptional gains in the goods sector supported by growth in services at rates established in the previous year and a half. In 1995, goods-producing job growth wilted, its effect on total employment compounded by a slowdown in job creation in services (Chart B). In other words, in both years the two broad sectors conspired to move the total in the same direction, up in 1994 and almost flat in most of 1995.

This year, with the exception of June (see box), overall employment growth has been only margin-

ally better than in the first five months of 1995, and all the growth can be attributed to services. The goods sector has shown no meaningful change.

Intermittent job growth in manufacturing

Manufacturing employment showed almost no improvement last year after its substantial post-recession rebound in 1994. So far this year, the estimates of employment for this industry show almost no discernible trend. As has been established in previous labour market reviews (Akyeampong, 1995; Dumas, 1996), there is a strong link between the level and trend in exports and the level and trend in employment in manufacturing.

Chart B

Except for 1994, when growth in the goods sector excelled, the service sector has been the main source of employment growth.



Source: Labour Force Survey

Clearly, unless the balance of 1996 sees export growth on a scale witnessed in 1994, manufacturing is not going to be the engine of employment growth this year without a dramatic increase in domestic demand.

Construction declines

Construction employment has continued a downward trend begun in 1995 following a strong performance in 1994. From December 1995 to June 1996, the month-to-month declines amounted to a 5% reduction.

Since relatively low interest rates have failed to spur construction growth, it is unclear whether further decreases, if they occur, would be of significant benefit to this industry in the balance of 1996.

Service sector shows more predictable growth

For the first five months of 1996, the service sector continued its role as the source of employment growth. The June data stand out as a sudden and dramatic interruption of this pattern. After a series of increases and decreases, the goods-producing estimates showed effectively no change from May. The June service sector estimates were down substantially (-84,000), mainly owing to trade (-26,000), public administration (-25,000) and finance, insurance and real estate (-14,000). However, whether the May-to-June changes represent the beginning of a new trend will depend on the LFS results for at least July and August (see box).

Full- and part-time workers

What set 1994 apart from other recent years was not only the rate of employment growth but also its composition. Almost all growth was in full-time workers. The number of part-time workers actually declined by 2.2%. The following year saw a resumption of the

"traditional" pattern of the 1980s and 1990s, with growth in part-time work exceeding growth in full-time (4.9 versus -0.2%).

In terms of relative growth rates, this year started out looking more like 1994 than 1995. From December 1995 to May 1996, full-time workers increased by 1.1% while part-time workers declined by 0.5%. However, this trend can be sustained only if June's decline in the number of full-time workers is reversed in the next few months.

Help-wanted Index offers little encouragement

The Help-wanted Index, compiled from the number of help-wanted ads in 22 major metropolitan newspapers, is a measure of companies' intentions to hire new workers. The index (June 1991=100) increased through 1994 to reach a high of 102 in November, holding this level through December and January 1995. It began to decline in February 1995, reaching 90 in January of 1996 and 87 by April. It has since moved to its current (June) level of 89. To the extent that changes in the Help-wanted Index anticipate future employment growth, the data for the first half of 1996 are not indicative of strong growth in the next few months.

The provincial dimension

The pattern of employment growth in 1994 and 1995 observed at the national level was not reflected in all provinces: some experienced a lacklustre 1994 and others continued to enjoy substantial employment growth throughout 1995. Similarly, in 1996 some provinces' performances have been at odds with the national trend.

Atlantic Canada is a mixed picture

Newfoundland showed a flat employment trend in both 1994 and 1995 (Chart C). This year is shap-

ing up to look like neither of the others, with a strong downward trend after December 1995 providing an inauspicious beginning.

Prince Edward Island shows a different pattern, but it too bears little resemblance to the national pattern over the past couple of years. Since at least December 1993, employment in that province has shown an upward trend, with variation. The end of 1995 and the first half of 1996 appear to represent the beginning of a new trend of little growth, or possibly decline.

Nova Scotia and New Brunswick showed some similarity to the national pattern in 1994 and 1995. But compared with Newfoundland and Prince Edward Island, they reveal no evidence of a downward trend so far.

Central Canada exhibits increasingly modest growth

The patterns of change in employment in Ontario and Quebec are similar. Both provinces showed sustained growth in 1994, little change until the autumn of 1995, then resumption of weak growth in late 1995 and into this year. However, the softness of employment in April, May and June (particularly June in Quebec) means that the 1994 growth will not be repeated this year, although the 1995 rates of 0.2% (Ontario) and 1.3% (Quebec) might be seen again.

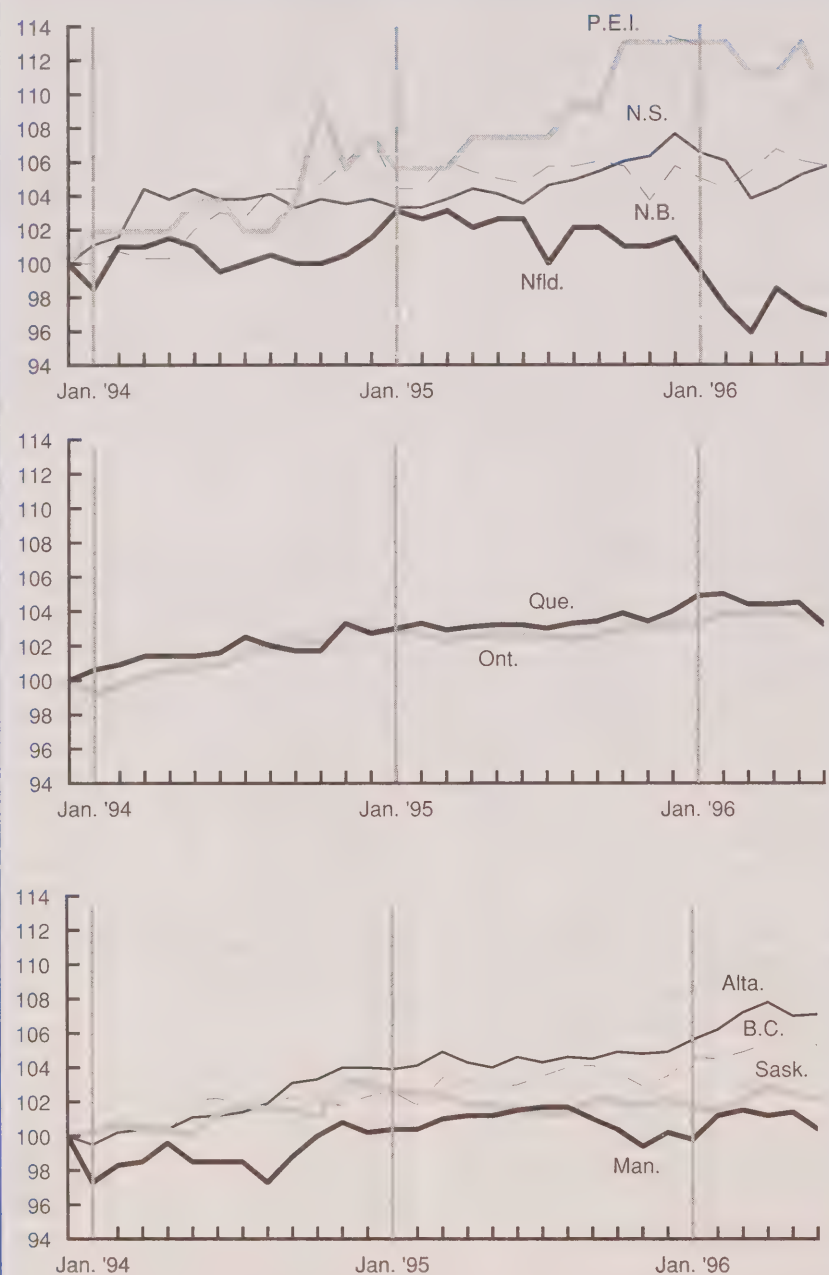
Western Canada: Alberta and British Columbia distinguish themselves

Over the entire two-and-a-half year period there has been a modest upward trend in employment in Manitoba, a pattern not evident elsewhere. In January of this year, employment stood where it had been in December 1993 and has shown little improvement since then.

Chart C

Job creation in Alberta and British Columbia continues to be impressive.

December 1993=100



Source: Labour Force Survey

In Saskatchewan, as in Canada as a whole, there was growth in 1994, but unlike the country as a whole, no sustained change after that. The first six months of this year suggest that 1996 will be much like 1995.

Alberta's and British Columbia's capacity to create jobs continues to be impressive. While 1994 was a year of considerable growth in these provinces as in most others, it was in 1995, and especially so far in 1996, that the two most westerly provinces have shown employment growth that sets them apart. In the first six months of this year, were it not for the combined increase of 31,000 in these two provinces, Canada's overall employment would have declined by 23,000.

The employment/population ratio

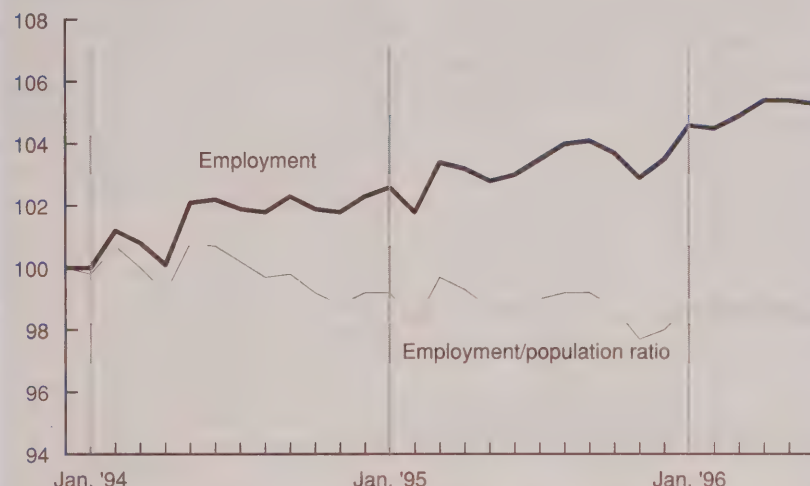
The employment/population ratio, or employment rate, expresses the percentage of the working-age population with jobs. As such it measures the extent to which the economy's capacity to generate jobs is keeping pace with changes in the size and composition of the population.

Movements in the employment levels are considerably dampened when employment is expressed as a percentage of the working-age population. This is to be expected, since the population is generally growing. It takes continuous employment growth, therefore, just to keep the employment rate from declining. This can be somewhat starkly illustrated by British Columbia (Chart D) where immigration has given the province exceptional population growth.¹ Even sustained employment growth has failed to offset population increases; consequently, the employment rate has declined.

Chart D

Despite strong employment growth in British Columbia, the employment/population ratio has fallen.

December 1993=100



Source: Labour Force Survey

Keeping in mind the effect of population growth on the employment/population ratio, how did the contrasting years of 1994 and 1995 play out in terms of changes in the employment rate, and how, in comparison, is 1996 evolving?

To some extent, all three of the demographic groups whose data are displayed in Chart E show some evidence of having benefited from the employment growth of 1994. In the case of youths, the evidence is weak, especially considering that the size of this population has barely changed throughout the 1990s. The adult groups² show the effects of the continuously growing population, with last year's slow employment growth making no difference to the employment/population ratio. Only for adult women is there evidence that 1996 is shaping up to be a better year than last, but this impression is based primarily on the December 1995-to-January 1996 increase.

Employment rates for adult women are returning to their pre-recession peaks. The gap between pre-recession and current rates is largest for youths, but even for men aged 25 to 54 a gap of 5.5 percentage points remained in May (since their February 1988 peak). Closing this gap for these men, even assuming no population growth for the balance of the year, would require an employment increase of 370,000, two-and-a-half times greater than their growth in 1994.

As for youths, there is no evidence so far of a return to the trend set at the beginning of the decade. This year has seen a series of one-month increases and offsetting decreases.

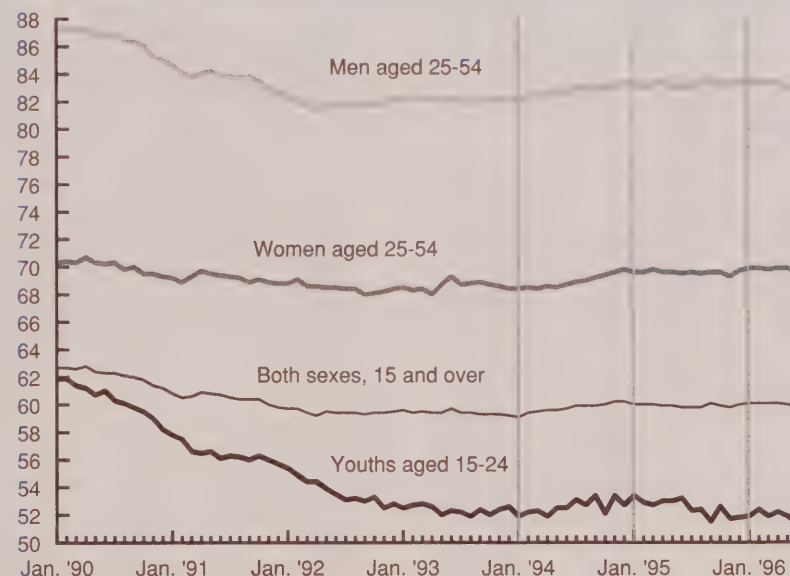
The participation rate

The participation rate shows the percentage of the working-age population engaged in the labour

Chart E

The employment rate for youths continues to decline.

Employment/population ratio (%)



Source: Labour Force Survey

market, either through employment or the search for employment. Because it is the product of individual, personal decisions, the participation rate is a less economically "sensitive" or "driven" statistic than the employment rate. This rate tends to exhibit trends that last for years and that are less a reflection of the labour market *per se* than of changing social values. The decades-long, uninterrupted growth in the labour force participation rate for women is the best known example of such a trend. Nevertheless, when viewed historically, changes in the participation rate around these longer trends do correlate with changes in labour market conditions. The challenge is to determine whether certain changes are responses to labour market developments or the beginning of new trends.

The patterns in the 1990s in adult participation rates pose just such a challenge. Data for adult

women reveal that after more than two decades of uninterrupted increases, overall adult female participation rates (expressed as annual averages) show no sustained change after 1991. Within specific age groups, the picture changes only moderately. For example, the rate continued to increase for women aged 45 to 54 until 1993 but has levelled out since then.

So far in 1996, there is no strong evidence of continuous increases re-emerging.³ This suggests new trends in women's labour force participation, since one would have expected their rate to increase in response to the employment growth in 1994 and 1995.

The participation rate for adult men continues to decline as it has for many years. This is not news. The declining participation rate of men aged 55 to 64 has been documented repeatedly. What may be

more newsworthy is the fact that this pattern of declining participation rates has extended to all adult age groups (Table).

Whether the declines for relatively young men (aged 25 to 44) constitute a new trend, or whether they will cease in the face of yet further employment growth, remains to be seen. In the meantime, what is called for is some analysis into whether these men are leaving the labour force for brief or sustained periods.

The youth participation rate has been sliding throughout the 1990s with no sign of ending. Just how much of this can be attributed to the severe labour market difficulties that youths have been experiencing is not clear. For some time young people have been staying in school longer, and full-time students have historically been associated with lower labour force participation rates. However, are

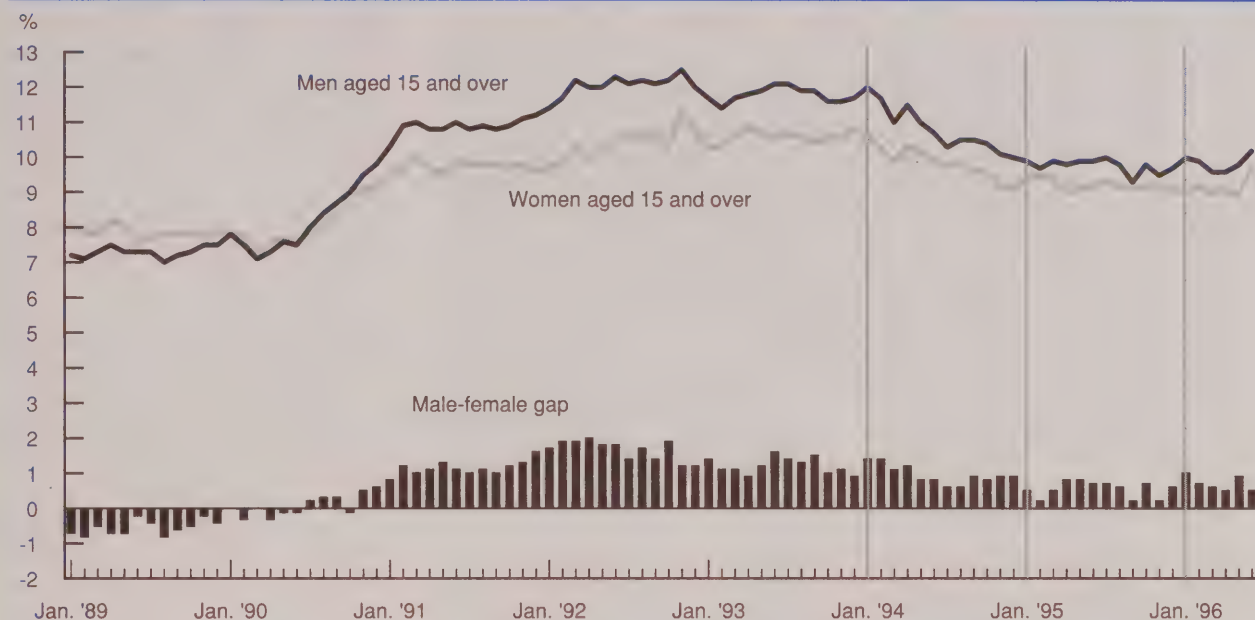
Table
Labour force participation rates by age and sex

	Both sexes				Men				Women			
	25 - 54	25 - 34	35 - 44	45 - 54	25 - 54	25 - 34	35 - 44	45 - 54	25 - 54	25 - 34	35 - 44	45 - 54
	%											
Annual averages												
1989	84.2	85.4	86.0	79.7	93.8	94.1	94.7	91.7	74.7	76.5	77.2	67.6
1990	84.5	85.6	86.3	79.9	93.3	93.7	94.3	91.0	75.7	77.4	78.4	68.7
1991	84.3	85.1	86.1	80.3	92.5	92.6	93.7	90.6	76.0	77.5	78.4	70.0
1992	83.6	84.0	85.2	80.6	91.6	91.6	92.8	90.0	75.6	76.4	77.7	71.1
1993	83.8	84.0	85.8	80.8	91.6	91.7	92.9	89.7	76.0	76.3	78.7	71.9
1994	83.6	83.7	85.5	80.7	91.4	91.2	92.7	89.8	75.7	76.1	78.4	71.5
1995	83.4	83.8	85.2	80.6	91.0	91.1	92.2	89.4	75.9	76.5	78.2	71.9
1996 monthly rates												
January	83.8	84.4	85.7	80.5	91.5	91.8	92.8	89.3	76.1	76.9	78.7	71.5
February	83.8	84.5	85.6	80.5	91.3	91.8	92.3	89.2	76.3	77.1	78.9	71.7
March	83.6	84.7	85.3	80.1	91.1	91.7	92.0	88.9	76.1	77.8	78.5	71.2
April	83.7	84.7	85.2	80.3	91.2	91.8	92.1	89.1	76.2	77.8	78.2	71.5
May	83.5	84.4	85.0	80.5	90.9	91.6	91.7	89.1	76.1	77.4	78.3	71.7
June	83.6	84.7	84.9	80.4	90.9	91.6	91.6	89.1	76.3	77.9	78.1	71.7

Source: Labour Force Survey

Chart F

Since the last recession, men's unemployment rate has exceeded women's, although the gap has narrowed.



Source: Labour Force Survey

they staying in school only because job prospects are poor? To the extent that this argument holds, there is a link between deteriorating labour market conditions for youths (evident, for example, in the declining employment/population ratio) and their low labour force participation rate, even though this link is obscured by changes in the school enrolment rates.

The unemployment rate

Compared with the rapid rise in unemployment rates during the last recession, the movements since the end of 1993 have been relatively gradual.

The beginning of a downward trend occurred with the strong growth in employment in 1994.

With only moderate employment growth in 1995 the unemployment rate continued to drift slowly downward in the first part of that year. In 1996, with the exception of June, this drift has halted altogether and the overall rate has kept to a narrow range centred on 9.5%.

As it did during the most recent recession and subsequent recovery, men's unemployment rate continues to exceed women's. Historically, this reversal in the relative rates has been seen only briefly during recessions such as the one in the early 1980s. The two unemployment rates are now converging (Chart F). Whether this reversal reflects the lingering effects of the recession, or a more permanent shift in the relative labour market experiences of men and women, remains to be seen.

Summary

While the growth rate in the goods sector exceeded that of services in 1994, the latter has been the exclusive source of overall employment growth so far in 1996, as it was in 1995.

The 1980s pattern of a generally more rapid growth in part-time employment seems to have become less stable in the 1990s. In 1994, full-time employment growth vastly exceeded that of part-time employment. There is some evidence that the dominance of full-time work may be repeated in 1996, though not as markedly as in 1994.

The national pattern of employment growth is by no means reflected in the paths followed by individual provinces. Some of the Atlantic provinces are seeing

faltering employment growth in 1996, while Alberta and British Columbia continue to create employment. Ontario shows little sustained growth and Quebec has suffered recent declines.

The movements in the employment rate show that what strength there has been in employment creation, has barely exceeded population growth for some of the major demographic groups. Only adult women have regained the employment rates they experienced at the beginning of the 1990s. These slow movements continue to be evident in 1996.

Throughout the 1990s, the labour force participation rates for the major age/sex groups have continued either to remain stable or to decline. For women this lack of growth has been in contrast with earlier decades. Men between 25 and 44 have been experiencing sustained declines for the first time.

The unemployment rate, at least until June 1996, has shown little movement since mid-1995, staying within the 9.2 to 9.7 range. The June estimate of 10.0% deviates from the trend.

If the changes noted in the June LFS prove to be fleeting, 1996 may unfold the way 1995 did. If the May-June changes prove to be more lasting, 1996 may well end up being an even slower growth year than 1995. □

■ Notes

1 In 1995, British Columbia had net immigration of nearly 24,000 people. The next closest province was Alberta with just over 2,000. In six of the remaining provinces, out migrants exceeded those moving into the province.

2 In this section, adults are defined as 25 to 54 year-olds rather than 25 and over. With an aging population, trends in the proportion of the population that is retired would obscure trends in the employment rate of those who have historically been most likely to work given the job opportunities available.

3 It appears that in the United States, the female participation rate, after pausing from 1989 to 1993, resumed its upward trend in 1994.

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Work absences and compensation

Nathalie Noreau

In recent years there have been numerous studies on work absences. However, very few have focused on absences of two weeks or more or on the associated compensation. The matter of compensation is of vital importance, since prolonged absences from work can have major financial consequences, both for the employees involved and for employers. The latter experience decreases in production resulting from these absences and often pay compensation to workers who are absent because of illness or accident.

Between 1979 and 1986 there were on average 760,000 absences per year; between 1987 and 1994 there were approximately 823,000. Absences due to illness rose from 476,000 to 494,000 per year on average between the two periods; absences due to accidents rose from 284,000 to 330,000. These increases are hardly surprising, given the growth in employment among both men and women over the 16 years in question.

The rates of absence from work for two weeks or more appear to evolve in tandem with absence rates for illness or disability, to judge from the statistics gathered during the 12 one-week reference periods of the Labour Force Survey (LFS) (Akyeampong, 1995). The average annual number of work absences of two weeks or more is changing, probably, according to some observers, because of company practices and measures to promote occupational health and safety. Encouragement of em-

Data sources

The data used in this article are drawn from the Absence from Work Survey (AWS), an annual supplement to the February Labour Force Survey. Sponsored by Human Resources Development Canada, the AWS provides information on paid employees who, in the year prior to the survey, were absent from work because of illness, accident or pregnancy. The absences in question are for two weeks or more and include not only those resulting from a work-related illness or accident but also those caused outside the workplace, but which may be eligible for compensation by employers. (Maternity leave is excluded from this study.)

The AWS statistics concern only the most recent absence of two weeks or more reported by respondents (although there may well have been more than one prolonged absence in the year). The survey concentrates on absences of at least two weeks because this duration is required before a worker is entitled to Unemployment Insurance.

The AWS also gathers information on the type of financial compensation received during the last absence: Un-

employee fitness may also play a role: many employers now provide a fitness program in the workplace.

Using data from the Absence from Work Survey (AWS) (see *Data sources*), this article looks at the change in the number and rate of work absences of two weeks or more due to illness or accident between 1979 and 1994. Average rates and numbers of absences will also be used for the two periods, 1979 to 1986 and 1987 to 1994. Special attention will be given to the sources of compensation paid to absent employees and to the breakdown among the different

employment Insurance, Workers' Compensation, indemnification under group or automobile insurance, or partial or full pay from the employer. An absence may give rise to more than one type of compensation, since the various types are not mutually exclusive.

This study compares AWS figures on work-related accidents with data from the National Work Injuries Statistics Program (NWISP) to determine whether there is a causal link between work injuries and prolonged absences (two weeks or more). The NWISP provides data on work-related injuries and illnesses leading to a period of inactivity. Such injuries and illnesses may be caused by an accident, by the work environment or by other conditions of work. The data from this program also indicate the age and sex of the injured worker, the occupation and industry, the nature, cause and site of the injury and the type of accident that caused it. However, there is no information on the compensation paid to injured workers, nor on claims for reimbursement of medical costs for work injuries not resulting in an interruption of employment.

sources. An examination of trends in absence rates and compensation will show whether some progress has been made (in other words, whether absence rates have declined) and whether there has been an increase in the incidence of financial compensation to employees coping with a prolonged absence.

How have prolonged absences changed over time?

Changes in the number of absences between 1979 and 1994 do not appear to follow a particular pattern (Chart A). An analysis of the data

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Chart A

Women's number of absences rose between 1979 and 1994, although their absence rate declined.



Source: Absence from Work Survey

by sex shows a slight increase among women and a decrease among men. Given the growth in employment over the 16 years studied, especially among women, a corresponding increase in absences for this group is to be expected.

A simple way to account for the employment growth is to analyze the number of work absences as a proportion of the number of employees in a given group. According to this measure, the overall rate of absence from work declined from 6.9% to 5.7% for the 1979-94 period, owing mainly to a decrease in the rate for men, whose drop in absences was accompanied by an increase in employment. The increase in the number of absences among women was offset by their strong growth in employment between 1979 and 1994.

A more detailed analysis (Chart B) shows that men registered a steep decline in their rate of

absence due to illness during the period. Combined with a slight decrease in the rate for women, this decline lowered the overall rate of absence for illness from 4.4% to 3.5%. The relative stability of the accident absence rate is explained by a slight decrease for men, balanced by a corresponding increase for women.

The growing gap between men's and women's absence rates for illness clearly reflects the major decrease registered by men. By contrast, a recent narrowing of absence rates for accidents probably owes much to the increase in the number of women in industries once largely dominated by men. It would appear that this shift has led to an increase in the incidence of accidents resulting in an absence of two weeks or more among women.

Average number and average rates of absence diverge

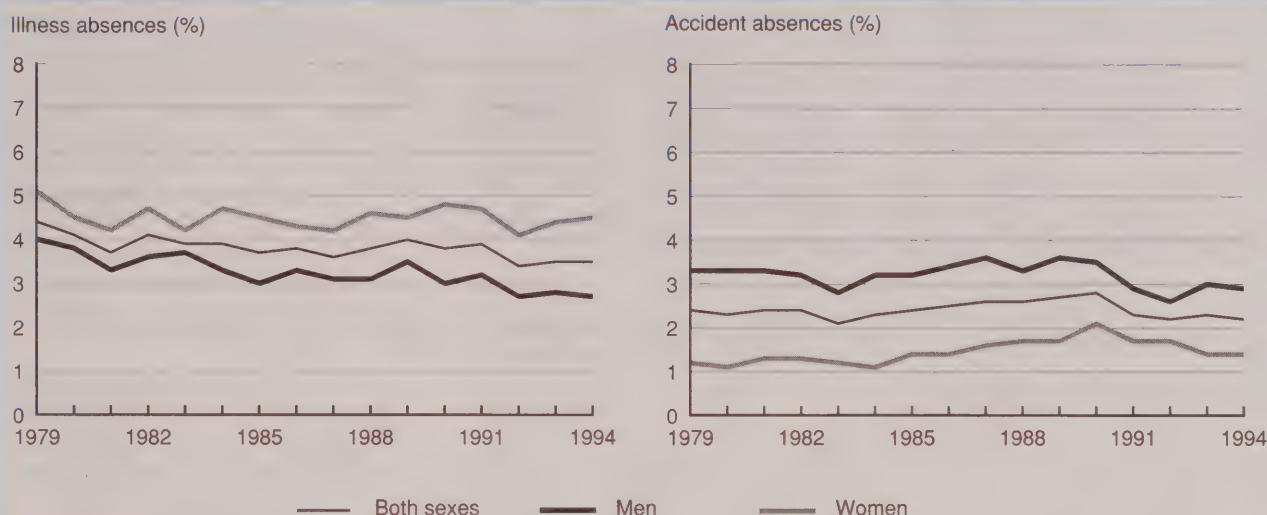
In order to minimize annual variations in the number of work ab-

sences, the observation period was divided (1979 to 1986 and 1987 to 1994), so that each period would cover eight years and a complete economic cycle. An average annual number of absences was then obtained for each period. The analysis of trends in average rates over the two periods serves to reduce the annual variations while taking account of the increase in the number of employees over the entire 16-year period.

A comparison of the two periods reveals an increase in the average number of absences, from 760,000 to 823,000 per year (up 8.4%). The increase is distributed very unequally between illness and accidents: the average number of the former increased by 3.8%, while that of the latter rose by 16.0%. Consequently, average absence rates (number of absences in relation to number of paid employees) slipped in the case of illness and rose slightly for accidents (Table 1).

Chart B

The absence rate for illness is higher among women than men; for absences due to accidents the rate is higher for men.



Source: Absence from Work Survey

Analysis by sex

For the two periods, a breakdown of the average number of absences by sex reveals quite different results. Men registered an average 455,000 absences from 1979 to 1986, compared with 442,000 from 1987 to 1994. Illness was the most common cause of absence during the first period; accidents took the lead during the second. The average rate of absence due to illness decreased by 0.5 percentage points, though the figure for accidents remained unchanged, reflecting the increase in employment among men.

The increase in the number of female workers from the first to second period was reflected in a jump in their average annual number of absences (up 25.0%). Although still fewer in number in the second period, prolonged absences due to accidents increased by 56.4%. As a result, the average rate

Table 1
Average annual number and rate * of absences, by reason and sex

	1979-1986		1987-1994	
	Average number	Rate	Average number	Rate
	'000	%	'000	%
Both sexes				
Illness or accident	760	6.3	823	6.2
Illness	476	3.9	494	3.7
Accident	284	2.4	330	2.5
Men				
Illness or accident	455	6.7	442	6.2
Illness	237	3.5	216	3.0
Accident	218	3.2	227	3.2
Women				
Illness or accident	305	5.8	381	6.1
Illness	239	4.5	278	4.5
Accident	66	1.2	103	1.7

Source: Absence from Work Survey

* The average annual number of absences for the period as a proportion of the average annual number of paid employees for the same period.

Comparison with other data sources

Accident absences and work injuries

Prolonged absences due to accidents are generally the result of a work injury. Do available statistics from the National Work Injuries Statistics Program (NWISP) and the Absence from Work Survey (AWS) reflect this trend?

NWISP figures for work injuries appear to move in tandem with those for accident absences of two weeks or more collected by the AWS for 1982 to 1994. A slight gap between the two is probably explained by the different definitions used by the two sources. The AWS considers work absences of two weeks or more. The NWISP, using administrative files of workers' compensation boards in Canada (except the Yukon), counts any absence, even those of less than two weeks, so long as the compensation claim associated with it is accepted a few days after the work injury.

There may be other reasons for this slight difference. Data collected by a survey (AWS) may differ from those obtained from a census (NWISP). In addition, the AWS may provide a somewhat inexact picture of the number of absences due to accidents, since the survey relies on respondents' recollection of events that may have occurred up to a year earlier. Furthermore, the populations covered

by these two data sources are different, since the AWS covers only paid workers, whereas the NWISP includes all workers.

It is therefore hardly surprising that the number of work injuries resulting in an interruption of employment is greater than the number of accident absences of two weeks or more. But given their similar trends, work injuries and prolonged absences due to accidents appear to be causally linked.

Prolonged absence compared with rates of absence for illness or disability

It may be useful to compare the AWS rates of absence due to illness or accident with the illness or disability absence rates drawn each month from the Labour Force Survey (LFS). The LFS is a household survey used to gather data about various aspects of the labour market. It counts all absences occurring in the reference week.

It is possible to establish a certain correlation between the findings of the two surveys, although the AWS absence rate is considerably higher than the LFS rate. This is probably because the LFS refers to 12 weeks distributed throughout the year, whereas the AWS is concerned with the entire year prior to the survey.

of absence because of illness among women remained stable. The increase in the number of women in the labour market was not sufficient to prevent a strong increase in their average rate of absence due to accidents; that rate rose from 1.2% in the first period to 1.7% in the second.

Analysis by industry

Absences due to illness or accident decreased from the first to second period for goods-producing industries

(-5.4%), and increased for service-producing industries (16.3%) (Table 2). The decrease in the former was the result of a sharp reduction in the number of absences due to illness (from 146,000 to 127,000), especially in manufacturing and other primary industries. This was offset slightly by a rise in the number of accidents resulting in long-term leave. In the service sector, the average annual number of absences increased for both illness and accidents from one period

to the next (11.4% and 27.0%). For both types of absence, the increase is attributable to the service industry.¹

The average rate of absence from work due to illness or accident is greater for the goods sector² than for the service sector, although it declined by 0.3 percentage points from one period to the next. This was owing to a drop in the rate for illness (4.0% to 3.6%). By contrast, the rate for accidents rose in both the goods and service sectors, although the latter experienced a corresponding decrease in the rate due to illness.

Some service industries, namely, transportation, communication and other utilities, and public administration, tend to produce fluctuations in absence rates.

Types of compensation received

All industries

When a worker is forced to take extended illness or accident leave, financial resources may need to be bolstered by another source of income. In some cases, workers may receive no compensation for absences of two weeks or more. Others may receive Unemployment Insurance, group insurance, automobile insurance or Workers' Compensation. In some cases, as in many service industries, the employer provides full or partial pay, depending on the nature of the absence.

Over the 16 years considered, the coverage provided under some group insurance contracts has undergone many changes. So too have Workers' Compensation and Unemployment Insurance benefits. In addition, some provincial laws now oblige employers to pay in full or in part the salaries of employees absent for a prolonged period

Table 2
Average annual number and rate * of absences, by reason and sector

	1979-1986		1987-1994	
	Average number	Rate	Average number	Rate
	'000	%	'000	%
All industries				
Illness or accident	760	6.3	823	6.2
Illness	476	3.9	494	3.7
Accident	284	2.4	330	2.5
Goods				
Illness or accident	279	7.7	264	7.4
Illness	146	4.0	127	3.6
Accident	132	3.6	137	3.8
Services				
Illness or accident	481	5.7	560	5.7
Illness	329	3.9	367	3.7
Accident	152	1.8	193	2.0

Source: Absence from Work Survey

* The average annual number of absences for the period as a proportion of the average annual number of paid employees for the same period.

because of an illness or accident. Faced with several compensation possibilities, employees opt for the most generous one, and in some cases may draw on two or more income sources.

If illness and accident absences are considered separately, incidence of compensation varies considerably among the sources (Table 3). For absences due to illness, the incidence of compensation has increased for Unemployment Insurance, Workers' Compensation and full pay³ from the employer. The last source, followed by group insurance, is most common for this type of absence.

By contrast, for accident absences the rate of no compensation grew slightly. Despite this, the incidence of full pay from the employer has risen for this absence, as has that of Unemployment Insurance, though not as much. As might

be expected, Workers' Compensation was paid most often, though the rate declined slightly from the first to second period studied.

The goods sector

From the 1979-86 to 1987-94 period, the compensation rate for full pay from the employer increased for illness absences in the goods sector, while that for Unemployment Insurance grew moderately.

In the case of absences due to accidents, the incidence of full pay compensation by employers continued to increase until 1993 (Chart C). However, the most common forms of compensation (Workers' Compensation and group insurance) dropped a few percentage points (Table 3). A growing proportion of workers in the goods sector receive no compensation for prolonged absences because of accidents.

Chart C

The rates for full pay and no compensation have been relatively stable for absences due to accidents.



Source: Absence from Work Survey

Table 3

Average annual number and rate * of compensations, by sector and reason

	Illness				Accident			
	1979-1986		1987-1994		1979-1986		1987-1994	
	Average number	Rate	Average number	Rate	Average number	Rate	Average number	Rate
	'000	%	'000	%	'000	%	'000	%
All industries								
No compensation	102	21	92	19	32	11	38	12
Unemployment Insurance	64	14	80	16	22	8	27	8
Workers' Compensation	16	3	22	4	142	50	163	50
Group insurance	127	27	129	26	39	14	41	12
Automobile insurance	--	--	--	--	15	5	18	6
Full pay	144	30	152	31	37	13	49	15
Partial pay	36	8	36	7	14	5	15	5
Other compensation	15	3	22	4	7	2	10	3
Goods								
No compensation	25	17	20	16	10	8	12	9
Unemployment Insurance	21	14	18	15	10	7	11	8
Workers' Compensation	8	6	9	7	78	59	77	56
Group insurance	57	39	46	37	22	17	21	15
Automobile insurance	--	--	--	--	5	4	6	5
Full pay	29	20	27	22	9	7	14	10
Partial pay	12	8	10	8	6	4	6	4
Other compensation	4	3	5	4	--	--	4	3
Services								
No compensation	77	23	72	20	22	14	26	13
Unemployment Insurance	44	13	62	17	12	8	16	8
Workers' Compensation	8	2	13	4	64	42	86	45
Group insurance	70	21	83	23	17	11	20	10
Automobile insurance	--	--	--	--	11	7	12	6
Full pay	116	35	125	34	27	18	35	18
Partial pay	24	7	26	7	8	5	9	5
Other compensation	11	3	16	4	4	3	5	3

Source: Absence from Work Survey

Note: An absence may be compensated by more than one source.

* The average annual number of compensations received in the period as a proportion of the average annual number of absences for the same period.

The service sector

In the service-producing industries, the incidence of compensation observed between 1979 and 1994 in cases of absence due to illness rose substantially (Chart D). This was mainly because of Unemployment Insurance and group insurance. However, full pay from the employer continues to be the most common form of compensation in the case of prolonged

absence for this reason, although its frequency decreased in the second period.

The situation is quite different for absences due to accidents. From one period to the next, the rate for Workers' Compensation increased. Unemployment Insurance and full pay from the employer rose only marginally. In contrast to the goods sector, the service sector has experienced a decline in the proportion

of cases for which there was no compensation for absences of two weeks or more.

Summary

The number of work absences of two weeks or more due to illness or accident increased between 1979 and 1994, primarily because of the increase in employment. Only women experienced an increase in both types of work absence.

Chart D

For illness absences, the incidence of no compensation is declining while that of full pay is rising.



Source: Absence from Work Survey

However, if men's drop in absences and women's remarkable growth in employment are taken into account, the overall rate of absence actually decreases.

A comparison of the two periods (1979 to 1986 and 1987 to 1994) reveals an increase in the annual number of absences. This was mainly attributable to women, since there was a sharp decline in absences due to illness among men. The overall average annual rate of absence also increased.

The average numbers of absences per year are higher in the service-producing industries, while the rates are higher in the goods-producing industries, probably because some of the latter are relatively high-risk.

As far as sources for compensation are concerned, most workers absent because of illness receive group insurance, full pay from their employer or Unemployment Insurance, regardless of whether they are employed in goods or services. By contrast, the compensation

received by workers absent because of accidents is generally in the form of Workers' Compensation, full pay from the employer (in the service sector) or group insurance (in the goods sector). The incidence of compensation paid for a prolonged absence due to illness has increased in both sectors, as it has for absences due to accidents in service-producing industries. □

Notes

- 1 This industry includes business services; educational services; health and social services; accommodation, food and beverage services and other service industries.
- 2 Some industries, particularly in the goods sector, are characterized by greater risks of illness or accident than others. (For further information, see Marshall, 1996).
- 3 Full pay means the absent worker's full salary, paid by the employer.

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Dual-pensioner families

Susan Poulin

In the last quarter century there has been a dramatic increase in the proportion of married couple families in which both spouses work. Among families with spouses of working age, 71% had both spouses working in 1994, compared with only 34% in 1967 (Moore, 1989). This has led to the transformation of many aspects of family life, including its financial situation. What is still, perhaps, not fully recognized is that the patterns of today's working couples will likely have profound effects on the incomes of tomorrow's retired families.

Work and retirement patterns are connected in a number of ways. While only 40 to 50 percent of workers have employer-sponsored pension plans (Frenken and Maser, 1992), the presence of two earners in the family means, all other things being equal, that a larger proportion of retired couples will benefit from two pension plans. As well, Canada and Quebec Pension Plan (C/QPP) benefits are tied to one's employment history. If both partners have had paid employment over the years, they both become eligible for C/QPP benefits. Furthermore, in theory at least, the higher their incomes during their working years, the more likely dual-earner families are to have disposable income to make investments, especially in home ownership and Registered Retirement Savings Plans (RRSPs).

Using data from the Survey of Consumer Finances (see *Data sources*), this article looks at dual-pensioner husband-wife families, comparing them with their single-pensioner and no-pensioner coun-

Definitions

In the families of this study, both husband and wife are present and aged 65 or over. While it is likely that both are retired, either or both spouses may still be working.

In this paper, **private pension income** refers to income received from employer-sponsored pension plans (Registered Pension Plans or RPPs), Registered Retirement Savings Plans (RRSPs)¹ and Registered Retirement Income Funds (RRIFs).

Families are classified according to how many pensioners they have. In a **dual-pensioner family** both spouses receive private pension income. In a **single-pensioner family** only one

terparts to see how private pensions, and their government equivalents, have contributed to the incomes of Canada's elderly (see *Definitions*).

Growth of dual-pensioner families

Among elderly husband-wife families, including common-law unions, there has been a significant increase in dual-pensioner families since the early 1980s, from 6% in 1981 to 20% in 1994. This is in the context of major increases in all types of pensioner families over the decade. Single-pensioner families have also increased. In 1981, over half of elderly families had no pensioners; by 1994, nearly half had at least one (Chart).

Dual-pensioner families have also become more evenly dispersed across the older age groups. In 1981, of all families in which the husband was from 65 to 69 years old, 10% were dual pensioners, double the likelihood for older sen-

spouse receives it. In a **no-pensioner family** neither spouse receives this type of income, although another family member may, thus making the family private pension income other than zero.

Public pension income is paid by the government to individuals who have contributed to the public pension plan (Canada and Quebec Pension Plan, C/QPP) during their working lives. C/QPP benefits have not been included in determining pension status, although they have been considered in the analysis (see *C/QPP broadens the extent of dual-pensioner families*).

iors. However, in the 13-year interval, the latter saw their percentage of dual-pensioner families increase dramatically. While it doubled for the 65 to 69 age group, it quadrupled for the 70 to 74 and 80 and

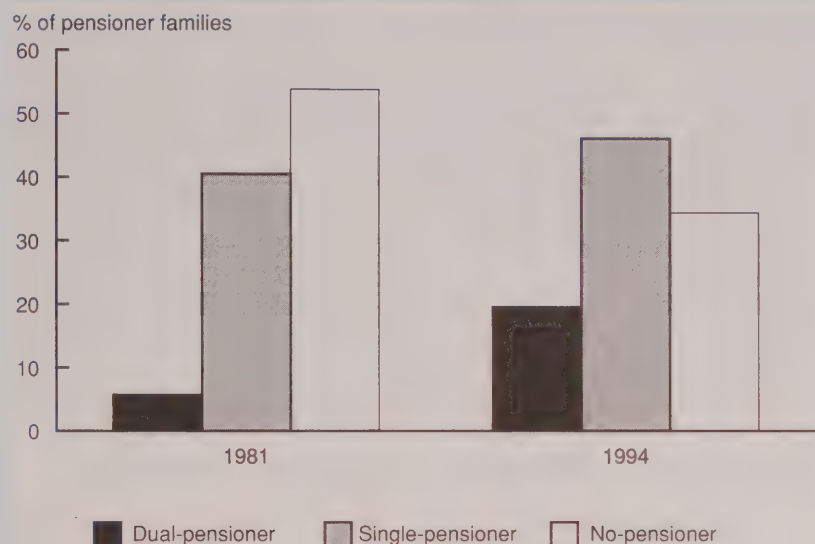
Data sources

Most data used in this paper are from the 1982, 1994 and 1995 Survey of Consumer Finances. The survey, conducted annually as a supplement to the monthly Labour Force Survey, collects information on income for the preceding year. This source excludes families living in the Northwest Territories and the Yukon, people in institutions, and members of families living on Indian reserves. Estimates in this article are based on recently revised data, adjusted to 1991 Census counts, so may not match those previously published by the Survey of Consumer Finances. The Household Facilities and Equipment Survey provided data on home value.

Amounts are given in 1994 dollars.

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Chart
The incidence of dual-pensioner families * has tripled.



Source: Survey of Consumer Finances

* A family with both spouses receiving one or more private pensions (see Definitions).

over groups, and increased seven-fold for those 75 to 79 (from 3% to 21%). In 1981, dual-pensioner families were much more prevalent among the younger seniors; by 1994, families with older members were catching up.

Wide income variations by pension status

In 1994, dual-pensioner families recorded the highest family incomes, averaging \$56,200; families with no pensioner and no C/QPP recipient fared the worst, with an average of \$21,900 (Table 1). The same general pattern existed in 1981, although the gap was not as great. In both years the average income of single-pensioner families was closer to that of no pensioners than to that of dual pensioners. Only no-pensioner families (with or without C/QPP) saw their real incomes drop over the 1981-94 period.

Table 1
Average income * received by families, according to their private pension and C/QPP status

	1981			1994		
	Number of families	Average income	% of families	Number of families	Average income	% of families
	'000	\$		'000	\$	
All pensioner families	441	33,200	100	748	38,900	100
Dual-pensioner	25	50,400	6	146	56,200	20
Single-pensioner	178	35,400	40	344	39,700	46
C/QPP, both spouses	43	38,900	10	187	41,300	25
C/QPP, one spouse	114	35,300	26	153	37,600	20
No-pensioner	237	29,700	54	257	27,900	34
C/QPP, both spouses	45	35,900	10	121	31,400	16
C/QPP, one spouse	120	30,900	27	110	25,500	15
C/QPP, neither spouse	73	24,000	16	27	21,900	4

Source: Survey of Consumer Finances

Note: The full breakdown of dual- and single- pensioner families is not shown because sample counts are too small to produce reliable estimates. Approximately 90% of the labour force contributed to the C/QPP. Therefore, most dual-pensioner families are also dual-C/QPP families.

* Income is from all sources and all family members. Amounts are given in 1994 dollars.

As expected, the receipt of C/QPP, even if by just one spouse, increases average family income. In 1994, single-pensioner families with one C/QPP recipient had an average income of \$37,600; those with two recipients averaged \$41,300.

Families with no pension income (private or public) are declining rapidly, to the point where they represented only 4% of pensioner families in 1994, down from 16% in 1981. More families are receiving work-related pensions, both public and private.

Pensioner status determines income sources

Most dual-pensioner families will have had the benefit of two earnings at some point in their lives.² This may have allowed them to make more investments, buy more valuable homes, and so on. Families with one or no pensioner may have relied more on government or other sources of income and may still be drawing from them. If so, elderly families' reliance on various income sources³ may differ according to their pension status. To highlight the differences in income composition, this section compares dual-pensioner families with those having neither a pensioner nor a C/QPP recipient. (For information about income composition by status of pensioner family see Appendix.)

Dual-pensioner families drew an average of \$12,900, or 26% of their total income, from private pensions in 1981. In 1994,⁴ the average pension income had increased to \$21,600, or 38% of family income (Table 2). Families without a pensioner were drawing 70% of their income from government transfers, up from 61% in 1981.

By 1994, both groups still received some income from earnings, families without pensioners drawing slightly more (11%) in terms of to-

C/QPP broadens the extent of dual-pensioner families

The C/QPP program, introduced in 1966, is mandatory for almost everyone who works. Many families who are not dual pensioners as defined in this report would be considered so if C/QPP were included in the definition. Dual-pensioner coverage would be substantially higher: 27% of families in 1981 and 62% in 1994. This is largely explained by the increased participation of women in the labour market.

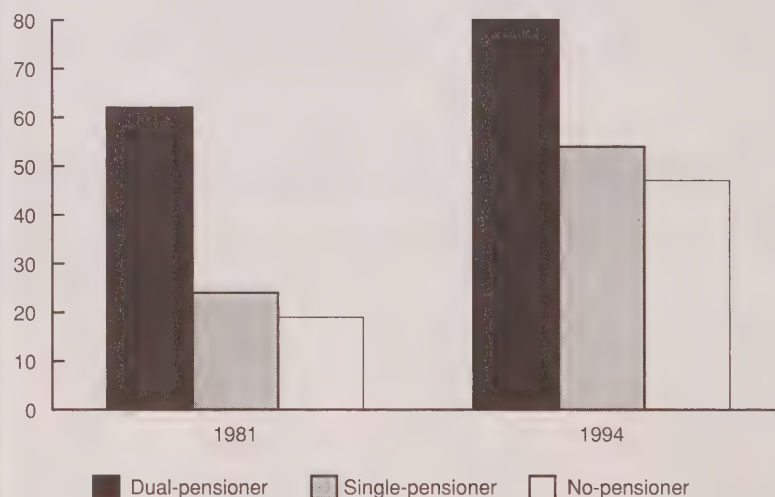
In 1994, more than one-half of families with only one private pension plan beneficiary had both spouses drawing C/QPP benefits; in this sense they are dual-pensioner families.

Furthermore, in families with neither spouse drawing a private pension, 47% had both spouses receiving C/QPP benefits.

In only 80% of cases in which both spouses received private pensions did both draw C/QPP. This was not higher because the definition of private pensions in this article includes RRSPs. Women who have no labour market experience but whose husbands have contributed to their RRSP would receive a private pension but no C/QPP. (The effect of RRSPs is referred to in greater detail later in this article.)

Dual-pensioner families are also more likely to receive C/QPP.

Both spouses with C/QPP (%)



Source: Survey of Consumer Finances

tal income than families with two pensioners (7%). The average income from these earnings, however, was higher for the latter (\$3,800 versus \$2,400), raising the overall average family income. Some 17% of dual-pensioner families received earnings; 13% of families without pensioners did. If families with earnings are excluded from the dual-pensioner category,

the average income declines by 13%. For the no-pensioner (and no C/QPP) category, average income declines by 11%.

Individuals with higher earnings are more likely to be covered by private pension plans than are those with lower earnings (Frenken and Maser, 1992). Also, because those with higher income, or earnings,

theoretically have more discretionary income to invest, dual-pensioner families report a much higher proportion of investment income. In 1994, this amounted to \$10,500 (or 19% of total income) compared with \$2,600 (12%) for families without pensioners. Some 86% of dual-pensioner families had investment income, compared with 38% of families without pensioners or C/QPP recipients. In the no-pensioner group those without investments reported an average income of \$19,600; those with investments, \$25,700.

Pensioner families' income composition changed somewhat between 1981 and 1994. For dual-pensioner families, the proportion of pension income (including RRSPs) to total income increased from 26% to 38%, probably because of more investments in RRSPs and better pensions thanks to longer contribution periods. For families without pensioners, the greatest change was in the contribution of earnings to total income, down 10 percentage points. This was compensated by increases in government transfers (9 percentage points) and in income received from "other"⁵ sources (6 percentage points).

RRSPs have made a difference

RRSPs were created to provide the self-employed and workers without employer-sponsored pension plans with "equivalent" tax relief on retirement savings.⁶ Although introduced in 1957, they did not become a popular vehicle for savings until the mid-1980s. Even in 1986, when the contribution ceilings were raised, only one in five taxpayers contributed and the average amount was low (Frenken, 1990).

So far, in an effort to compare concepts across time, this article has shown data based on the amalgamation of all pension income. But because RRSP annuities and RRIF

Table 2
Average and percentage distribution of income for dual- and no-pensioner (no C/QPP) families

	Dual pensioners			No pensioners, No C/QPP		
	Average income	Contribution to total	Families with source	Average income	Contribution to total	Families with source
	\$	%		\$	%	
1981 (All sources)	50,400	100		24,000	100	
Earnings	6,800	14	33	5,000	21	23
Private pensions	12,900	26	100	--	--	-
C/QPP	5,900	12	96	--	--	-
Investments	14,600	29	91	4,000	17	52
Government transfers	9,100	18	100	14,700	61	98
Other	1,000	2	16	300	1	4
1994 (All sources)	56,200	100		21,900	100	
Earnings	3,800	7	17	2,400	11	13
Private pensions	21,600	38	100	-	-	-
C/QPP	9,600	17	98	--	--	-
Investments	10,500	19	86	2,600	12	38
Government transfers	10,000	18	100	15,300	70	100
Other	700	1	12	1,600	7	16

Source: Survey of Consumer Finances

Note: Averages are for the entire family and for all families in the category (including those without that source). Amounts are given in 1994 dollars.

withdrawals have been collected separately from employer-sponsored pension income since 1993, it is worth considering whether results would differ if the study showed only the growth in pensions from employers.

When RRSP annuities and RRIFs are removed from 1994 pension income, the percentage of dual-pensioner families drops dramatically, from 20% to 12% (though the figure for single-pensioner families remains constant). This represents a decrease of nearly 60,000 families. Clearly, the recent enthusiasm for RRSPs⁷ has had as much to do with the increase in dual-pensioner families as has the increase in employer pensions. Women's participation rates in RRSPs grew from 6% in 1979 to 19% in 1989 (Frenken, 1991). This growth will not likely have manifested itself until the late 1980s or early 1990s, so even though RRSPs

and pensions cannot be considered separately for the years prior to 1993, information for 1981 is not likely affected significantly.

In 1994, the average income of dual-pensioner families receiving RRSP annuities or RRIFs was \$61,200; for families without these sources the amount was just \$46,400. Not surprisingly, the RRSP annuities⁸ or RRIFs accounted for 58% of this gap.

Home ownership and value of the home

Residential property is another important component of the financial situation of pensioners. If both spouses have worked, the couple may have equity in a high value home. In 1994, most retired families (82%) owned their home, 87% of which were mortgage free. Families with two pensioners were homeowners 90% of the time and

85% of those possessed total equity in their home. A smaller percentage of no- and single-pensioner families owned a home (80%) but they owned mortgage free more often (88%).

Families without pensioners have greater equity in their home than do others. In 1994, the average market value of a mortgage-free home⁹ owned by dual pensioners was \$152,000. The corresponding value for other pensioner families was not significantly different (\$158,000). Despite their higher incomes, dual-pensioner families did not own higher-value mortgage-free homes.

Future of dual-pensioner families

Although the proportion of dual-pensioner families in 1994 was just 20%, it was much greater than it had been 13 years earlier. Is this pattern likely to continue? It is difficult to predict but the following factors are relevant. Women's participation in employer-sponsored pension plans increased from 36% of paid workers in 1982 to 42% in 1992; this growth was due largely to their increased employment in industries that have traditionally had high pension coverage. The growth began levelling off at the beginning of the 1990s, though the increases of the 1970s and 1980s will continue to affect the incidence of dual-pensioner families for many years.

Employers are now choosing other, less expensive, alternatives to pension plans, such as group RRSPs (Frenken, 1996). This does not affect the number of dual-pensioner families as they are defined here, but it will substantially decrease the number of families

with two RPPs, as well as the average income of retired families. In addition, jobs are now being created in small or medium-sized firms, whose employers tend not to institute a pension plan. On the other hand, legislation to provide vesting after two years of participation in a private pension plan, and to allow part-time workers to participate, should contribute to the growth in such plans (Galarneau, 1991). □

Notes

1 Cash withdrawals from RRSPs are not included since they are considered simply a depletion of savings.

2 Not all dual-pensioner families will have had two earners. For example, spouses who have remarried and are receiving a survivor's pension from a previous spouse may never have worked themselves.

3 The income sources are those of the entire family, not just of the husband and wife.

4 Starting in 1993, income from RRSP annuities and RRIF withdrawals were collected separately. In order to keep the concept of pension income constant throughout, this study retained those sources as pension income.

5 Other income includes retiring allowances and severance pay, wage loss replacement benefits, income maintenance payments, disability payments from a non-government insurance plan, payments from Children's Aid, and non-refundable scholarships and bursaries.

6 Employee contributions to Registered Pension Plans (RPPs) have always been a tax deduction. This is why membership in an RPP reduces the scope for RRSP contributions.

7 Although the percentage of the labour force participating in RPPs changed little from 1983 to 1993 (about 35%), over that same period the percentage contributing to RRSPs almost doubled (18% to 35%).

8 The average value of an RRSP annuity or RRIF for dual-pensioner families receiving such income was \$8,600. Averaged over all dual-pensioner families, the value was \$5,700, an increase of 18% from \$4,800 the year before.

9 Families without a mortgage are used in this study because the Household Facilities and Equipment Survey, from which the market value is taken, does not collect information on unpaid mortgages, which should, strictly speaking, be taken into account. Also, elderly homeowners with a mortgage are atypical and few (10%).

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Appendix

Income composition by status of pensioner family

	Earnings *		Pensions **		C/QPP		Investments		Government transfers †		Other ††		Total	
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%
1981 average income (1994 \$)														
All pensioner families	5,400	16	3,800	11	3,100	9	8,900	27	11,600	35	400	1	33,200	100
Dual-pensioner	6,800	14	12,900	26	5,900	12	14,600	29	9,100	18	1,000	2	50,400	100
Single-pensioner	4,000	11	7,500	21	3,700	10	9,200	26	10,400	29	600	2	35,400	100
C/QPP, both spouses	3,800	10	8,800	23	6,100	16	9,400	24	9,600	25	1,200	3	38,900	100
C/QPP, one spouse	4,600	13	7,400	21	3,500	10	9,200	26	10,300	29	400	1	35,300	100
No-pensioner	6,300	21	--	--	2,300	8	8,100	27	12,700	43	300	1	29,700	100
C/QPP, both spouses	6,700	19	--	--	4,900	14	12,900	36	11,200	31	100	--	35,900	100
C/QPP, one spouse	7,000	22	100	--	2,800	9	8,800	28	12,100	39	300	1	30,900	100
C/QPP, neither spouse	5,000	21	--	--	--	--	4,000	17	14,700	61	300	1	24,000	100
1994 average income														
All pensioner families	3,800	10	9,700	25	7,400	19	5,700	15	11,700	30	700	2	38,900	100
Dual-pensioner	3,800	7	21,600	38	9,600	17	10,500	19	10,000	18	700	1	56,200	100
Single-pensioner	3,000	8	11,800	30	7,600	19	5,600	14	10,900	27	800	2	39,700	100
C/QPP, both spouses	3,600	9	12,200	30	9,200	22	4,900	12	10,700	26	700	2	41,300	100
C/QPP, one spouse	2,200	6	11,400	30	6,000	16	6,100	16	11,400	30	600	2	37,600	100
No-pensioner	4,800	17	--	--	5,700	21	3,100	11	13,800	49	400	2	27,900	100
C/QPP, both spouses	6,300	20	--	--	8,200	26	3,600	11	13,100	42	300	1	31,400	100
C/QPP, one spouse	3,700	14	--	--	4,500	18	2,700	11	14,200	56	400	1	25,500	100
C/QPP, neither spouse	2,400	11	--	--	--	--	2,600	12	15,300	70	1,600	7	21,900	100

Source: Survey of Consumer Finances

* Includes wages and salaries, military pay, self-employment income.

** Pensions in 1994 are the sum of two items on the questionnaire, pensions and RRSPs. In years previous to 1993, pension income was collected as one item on the questionnaire.

† Excludes C/QPP. Includes all credits from government, such as Child Tax Credit, Old Age Security, Guaranteed Income Supplements, Spouse's Allowance, Unemployment Insurance benefits, social assistance, Workers' Compensation.

†† See note 5.

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PERSPECTIVES

ON LABOUR AND INCOME

Supplement

Autumn 1996

Work absence rates, 1995

An update to *Work Absence Rates, 1977 to 1994* (Catalogue no. 71-535-MPB, no. 7).

HIGHLIGHTS

- In 1995, an estimated 5.8% (520,000) of full-time employees missed some work time each week for personal reasons (namely, "illness or disability" or "personal or family responsibilities"). This was unchanged from the level in 1994.
- As a result of these absences, about 3.7% of the usual work time of full-time paid workers was lost each week.
- Work time lost per full-time employee for personal reasons averaged 9.1 days, also unchanged from the figure a year earlier. Total workdays missed by full-time employees for personal reasons amounted to more than 81 million in 1995.
- Time lost per full-time worker on account of illness or disability inched down from 6.0 days in 1994 to 5.9, but this was offset by a rise from 3.1 to 3.2 for absences due to personal or family responsibilities.
- Full-time female employees on average missed about 13.3 workdays in 1995, more than double the average for their male counterparts (6.3). Most of the difference can be attributed to time lost on account of personal or family responsibilities (6.6 days for women versus 0.9 for men).

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Work absence rates, 1995

Ernest B. Akyeampong

Data source and definitions

The data in this supplement are annual averages from the Labour Force Survey (LFS). They refer to full-time (working 30 hours or more) paid workers holding only one job.¹ Part-time paid workers, the self-employed and unpaid family workers are excluded, because they generally have more opportunity to arrange their work schedules around personal or family responsibilities. Multiple jobholders are excluded because it is not possible, using LFS data, to allocate time lost, or the reason for it, to specific jobs.

Personal reasons used in estimating the absence rates from the LFS fall into two categories: those due to "own

illness or disability" and those due to "personal or family responsibilities." Absences for these two reasons represented about 32% of all time lost by full-time paid workers each week in 1995. Vacations, which accounted for about 43% of the total, are not counted in this study, nor are statutory holidays, which represented 17%. Other factors, such as labour disputes, plant shutdowns and bad weather, accounted for 8%.

Absences related to pregnancy or maternity (certainly not considered an absenteeism factor) are included in the personal or family responsibilities code in the LFS.² While this tends to exaggerate absence levels among some groups of women, the effect on the rate for women overall is probably small.³ Paternity leave is also included in this

category, but since the availability and use of this type of leave are believed to be low, the effect on men's absence rates is assumed to be negligible.

The **incidence** of absence is the percentage of full-time paid workers reporting some absence in the reference week. The length of absence – whether an hour, a day, or a full week – is irrelevant.

The **inactivity rate** shows hours lost as a proportion of the usual weekly hours of all full-time paid workers. It takes into account both the frequency and length of absence.

Days lost per worker are calculated by multiplying the inactivity rate by the estimated number of working days in the year (250).

Data quality

The Labour Force Survey produces estimates based on information drawn from a sample survey of households. Somewhat different estimates might have been obtained had a complete census been taken using the same questionnaire, interviewers, supervisors, processing methods, and so on. The difference between the estimates obtained from the sample and those from a complete count taken under similar conditions is called the **sampling error** of the estimate.

While the sampling error is not known, it can be estimated from the sample data. One measure used is the coefficient of variation (CV), which is the standard deviation expressed as a percentage of the estimate. Since it can be very time-consuming and expensive to compute CVs for a large number of estimates from a complex survey such as the LFS, an indirect measure of reliability may be used. Generally speaking, the larger the estimate, the smaller its CV. Analysis has shown that LFS estimates of less

than 4,000 typically have high CVs, making them unreliable.

In this update, as well as in the original publication (Statistics Canada, 1995), absence rates are considered reliable enough if they are derived from estimates of at least 4,000. For example, in 1995, the estimated number of male full-time paid workers aged 15 to 19 was 119,300. Of these, the estimated number reporting absences was 4,500, resulting in an incidence rate of 3.8% (Table). However, since the estimated number of these men with absences due to illness or disability was below the reliability threshold of 4,000, no incidence rate is shown. The same applies for the incidence rate for absences due to personal or family responsibilities for 15 to 19 year-old men. Estimates not reliable enough to be published are shown as two dashes (--).

Errors that are not related to sampling may occur at almost any phase of a survey operation. Interviewers may misunderstand instructions, respondents may make errors in answering questions, answers may be incorrectly entered on the questionnaire, and errors

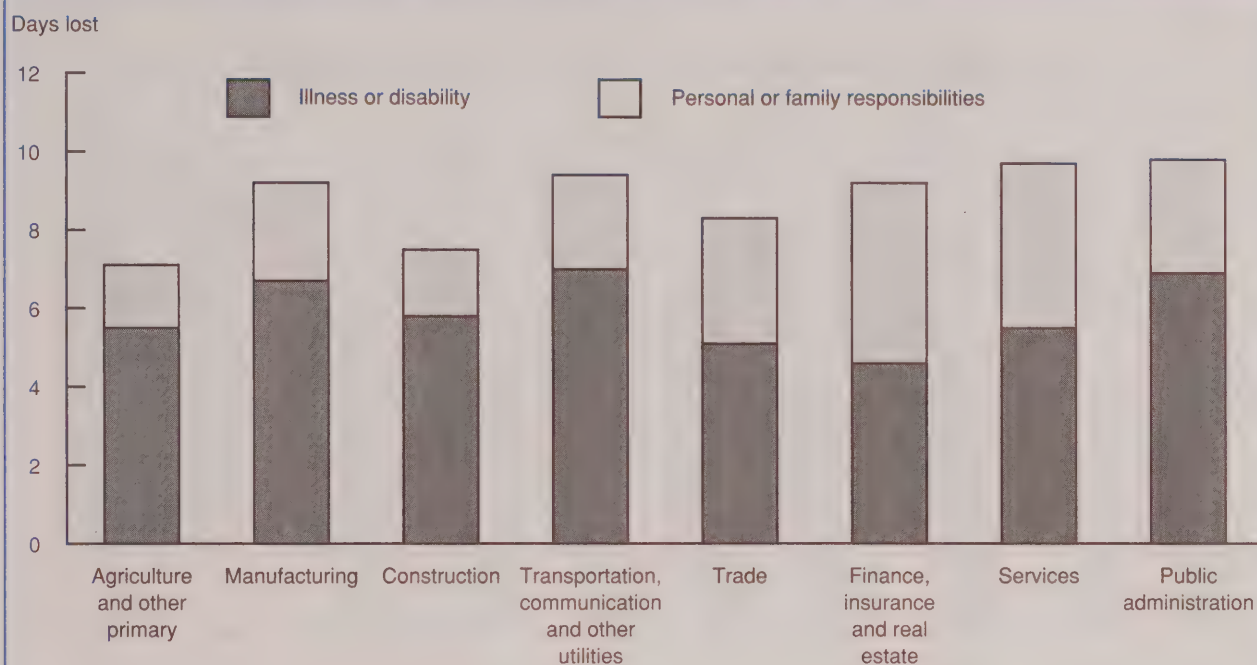
may be introduced in the processing and tabulation of the data. These are all examples of **non-sampling errors**.

Over a large number of observations, randomly occurring errors will have little effect on estimates derived from the survey. However, errors occurring systematically will contribute to biases in the survey estimates. Considerable time and effort was taken to reduce non-sampling errors in the survey. Quality-assurance measures, implemented at each stage of the data collection and processing cycle, included the use of well-trained and highly skilled interviewers, observation of interviewers to detect problems of questionnaire design or misunderstanding of instructions, use of procedures to ensure that data-capture errors were minimized, and provision of coding and edit quality checks to verify the processing logic.

For a fuller description of the survey's objectives, coverage, sampling techniques, concepts, definitions, data quality and so on, see "Notes on the survey" in *The Labour Force*.

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Days lost per full-time worker for personal reasons by industry, 1995.



Source: Labour Force Survey

Note: Generally, the more hazardous and/or physically demanding the industry, the higher the likelihood of absence for illness or disability. Likewise, the higher the proportion of women in an industry, the higher the likelihood of absence for personal or family responsibilities. For an analysis of differences between industries, see Akyeampong (1988, 1992, and 1995) and Statistics Canada (1995).

Average workdays lost per worker for personal reasons

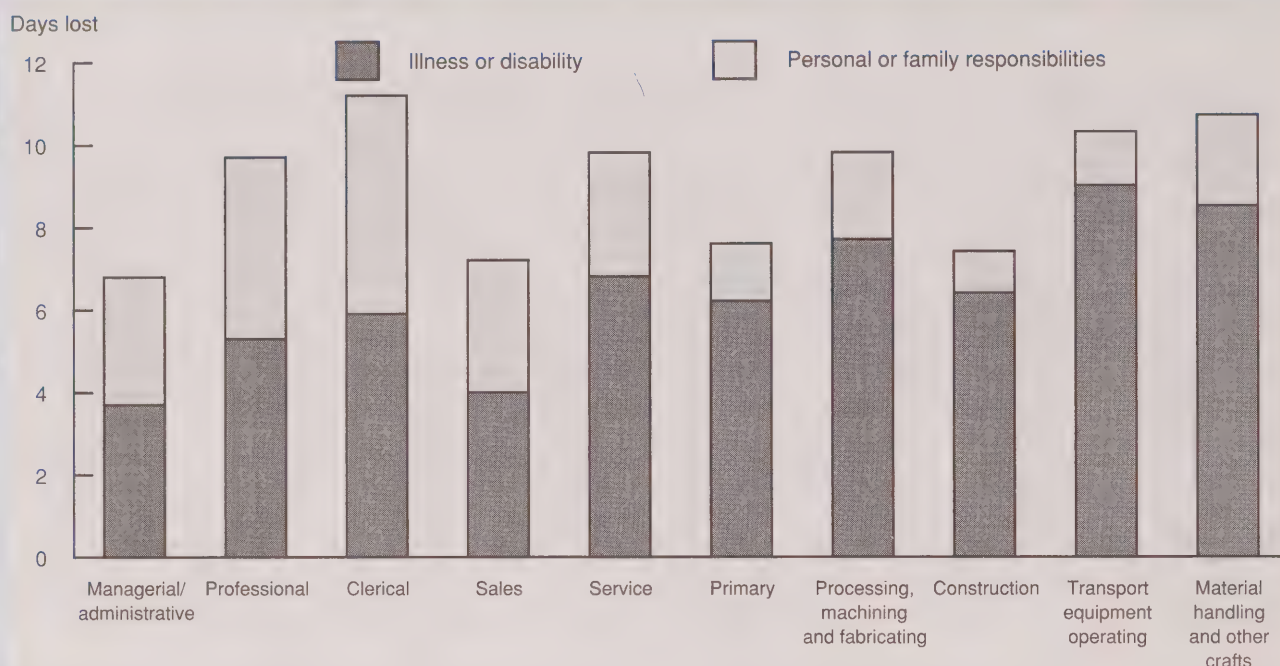
On average, workers in public administration and in services lost more work time for personal reasons in 1995 (9.9 days and 9.7) than those in agriculture and other primary industries or construction (7.1 and 7.5).

Illness or disability

Full-time employees in transportation, communication and other utilities missed more work time because of illness or disability (7.0 days) than workers in other industries; those in public administration lost 6.9 days and in manufacturing, 6.7. Average days lost for this reason were low in finance, insurance and real estate (4.6), as well as in trade (5.1).

Personal or family responsibilities

Workers in finance, insurance and real estate (4.6) and services (4.2) lost well above the overall average of 3.2 days because of personal or family responsibilities. Among those in agriculture and other primary industries (1.6) and construction (1.7) time missed from work for this reason was approximately one-half the overall average.

Days lost per full-time worker for personal reasons by occupation, 1995.

Source: Labour Force Survey

Note: Generally, the more hazardous and/or physically demanding the occupation, the higher the likelihood of absence for illness or disability. Likewise, the higher the proportion of women in an occupation, the higher the likelihood of absence for personal or family responsibilities. For an analysis of differences between occupations, see Akyeampong (1988, 1992) and Statistics Canada (1995).

Average workdays lost per worker for personal reasons

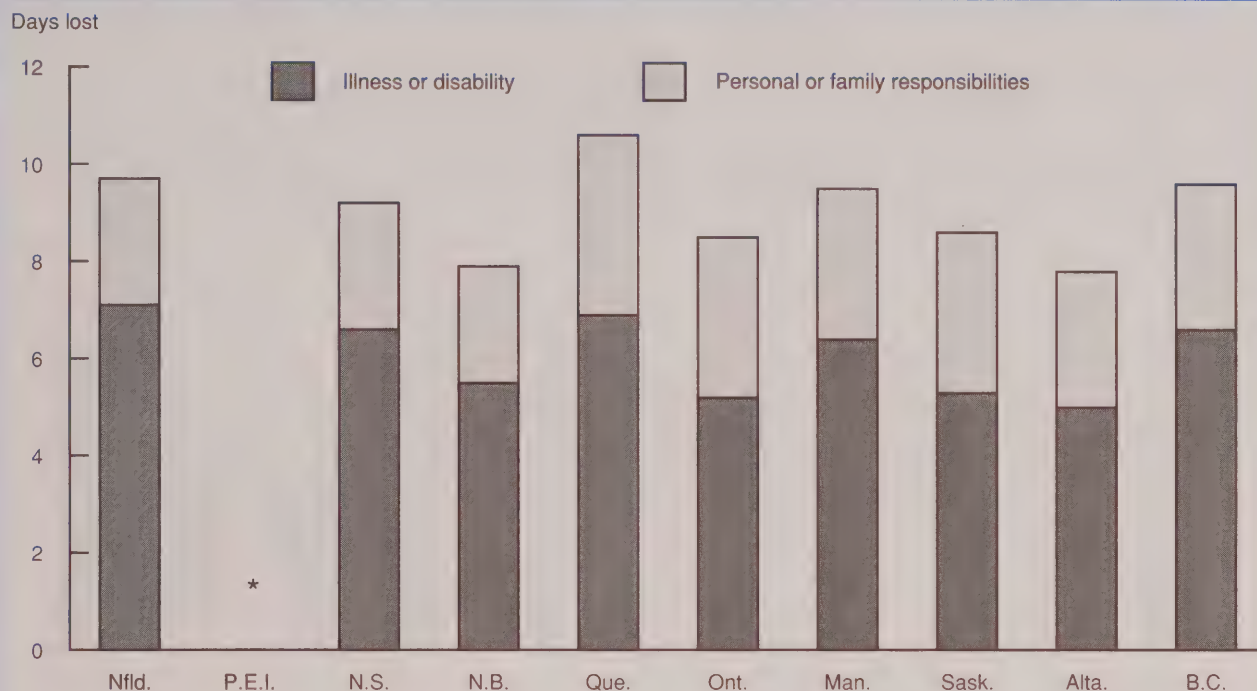
In 1995, work time lost for personal reasons amounted to 11.2 days among workers in clerical occupations, 10.7 in material handling and other crafts and 10.2 in transport equipment operating, substantially exceeding the overall average of 9.1 days. Persons in managerial/administrative positions and in sales missed relatively few workdays (6.8 and 7.2).

Illness or disability

Average workdays missed on account of illness or disability were high among full-time workers in transport equipment operating (9.0) and material handling and other crafts (8.5), accounting for 80% or more of the total for those occupations in 1995. Workers in managerial/administrative positions and those in sales jobs missed fewer days (3.7 and 4.0).

Personal or family responsibilities

Average days missed by employees in clerical positions (5.3) for personal or family responsibilities greatly exceeded the overall average of 3.2 days in 1995. Time lost for this reason in construction and in transport equipment operating was low, averaging only 1.0 and 1.3 days per worker, respectively.

Days lost per full-time worker for personal reasons by province, 1995.

Source: Labour Force Survey

Note: Differences in time lost per worker generally reflect variations in the provincial industry mix. For a comparison of provinces, see Akyeamong (1988, 1992) and Statistics Canada (1995).

* Numbers are too small to be expressed.

Average workdays lost per worker for personal reasons

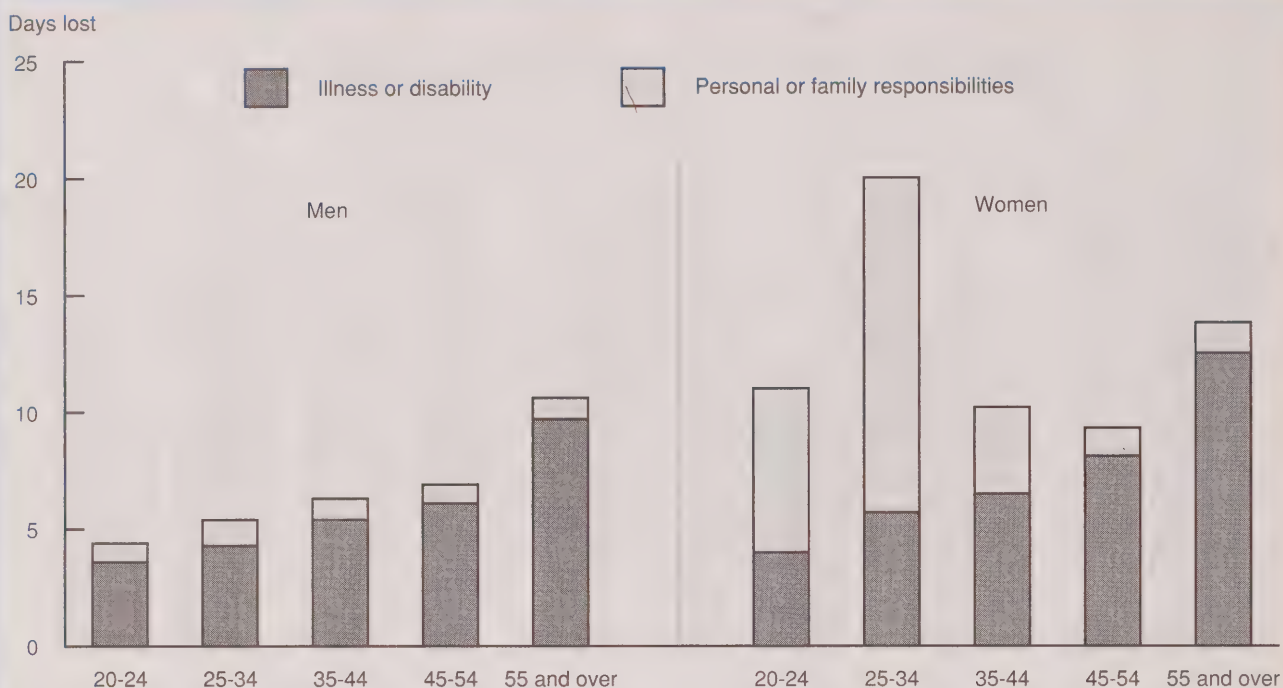
In 1995, workers in Quebec lost the most work time due to personal reasons (10.6 days), followed by those in Newfoundland (9.7). Those in Alberta and New Brunswick lost fewer days (7.7 and 7.9).

Illness or disability

With respect to workdays missed on account of illness or disability, workers in Newfoundland and Quebec lost 7.1 and 6.9 days; those in Alberta and Ontario, 5.0 and 5.2.

Personal or family responsibilities

Variations in days lost per full-time worker because of personal or family demands were less pronounced. Average counts ranged from a high of 3.7 days in Quebec to a low of 2.6 in Nova Scotia.

Days lost per full-time worker for personal reasons by age and sex, 1995.

Source: Labour Force Survey

Note: The likelihood of missing work because of illness or disability generally rises with age. Also, days lost due to personal or family responsibilities tend to peak in the child-bearing, child-rearing years among women, though some of the time lost for this reason can be attributed to the inclusion of maternity leave in this category (see Data source and definitions). For a comparison of absence rates between age groups and sexes, see Akyeampong (1988, 1992) and Statistics Canada (1995).

Average workdays lost per worker for personal reasons

In each age group, female workers' total workdays lost exceeded their male counterparts'. Almost all differences can be traced to absences due to personal or family responsibilities.

Illness or disability

For both men and women, days lost due to illness or disability rose with age in 1995, rising from 3.6 days for men aged 20 to 24 to 9.7 for men aged 55 and over. The corresponding figures for women were 4.0 and 12.5.

Personal or family responsibilities

Among men, work time lost in 1995 due to personal or family responsibilities varied little by age (around one day). Among women, it was highest during the primary child-bearing and child-rearing years. In 1995, full-time working women aged 20 to 24 lost 7.0 days on average to attend to personal or family demands; for those in the 25 to 34 age group, the figure was 14.3 days. (See "Key labour and income facts" to see how the presence of pre-school children affects these absence rates.)

Table
Absence rates of full-time paid workers by industry, occupation, age, sex and region, 1995

	Incidence			Inactivity rate			Days lost per worker in year		
	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities	Total	Illness or disability	Personal or family respon- sibilities
		%			%			days	
Men	4.4	3.2	1.2	2.5	2.2	0.4	6.3	5.4	0.9
Industry									
Goods-producing industries	4.7	3.5	1.2	2.8	2.5	0.4	7.1	6.2	1.0
Agriculture and other primary	4.3	3.2	--	2.7	2.3	--	6.7	5.8	--
Manufacturing	4.9	3.6	1.3	2.9	2.5	0.4	7.3	6.3	1.0
Durable manufacturing	5.0	3.6	1.3	2.9	2.5	0.4	7.1	6.2	1.0
Non-durable manufacturing	4.9	3.6	1.3	3.0	2.6	0.4	7.5	6.5	1.0
Construction	4.3	3.1	1.1	2.8	2.4	0.4	6.9	5.9	1.0
Service-producing industries	4.1	3.0	1.1	2.3	2.0	0.4	5.8	4.9	0.9
Transportation, communication and other utilities	4.8	3.7	1.1	3.0	2.6	0.4	7.4	6.5	0.9
Transportation and other utilities	5.3	4.1	1.2	3.4	3.0	0.4	8.4	7.4	1.0
Communication	3.4	2.5	--	1.9	1.6	--	4.8	4.1	--
Trade	4.1	2.9	1.2	2.3	1.9	0.4	5.6	4.7	0.9
Wholesale trade	3.8	2.5	1.3	1.9	1.5	0.4	4.7	3.8	0.9
Retail trade	4.3	3.2	1.1	2.5	2.1	0.4	6.3	5.3	0.9
Finance, insurance and real estate	3.5	2.3	--	1.6	1.3	--	4.1	3.2	--
Finance and insurance	3.4	--	--	1.6	--	--	4.0	--	--
Real estate and insurance agencies	--	--	--	--	--	--	--	--	--
Services	3.5	2.6	1.0	1.9	1.6	0.4	4.9	3.9	0.9
Education services	3.7	2.8	--	2.1	1.8	--	5.2	4.4	--
Health and social services	5.2	3.9	--	3.3	2.6	--	8.3	6.6	--
Business services	2.9	1.9	--	1.2	0.9	--	2.9	2.3	--
Accommodation, food and beverage services	2.7	--	--	1.6	--	--	4.0	--	--
Other services	3.5	2.5	--	1.9	1.5	--	4.7	3.9	--
Public administration	5.2	4.0	1.2	2.9	2.5	0.4	7.3	6.4	0.9
Federal administration	6.6	5.2	--	3.5	3.1	--	8.8	7.8	--
Provincial administration	4.7	3.4	--	2.6	2.2	--	6.5	5.5	--
Local administration	4.4	3.4	--	2.6	2.3	--	6.4	5.7	--
Occupation									
White-collar occupations	3.4	2.3	1.1	1.7	1.3	0.4	4.2	3.3	0.9
Managerial/administrative	3.1	2.0	1.1	1.5	1.2	0.4	3.8	2.9	0.9
Professional	3.5	2.3	1.1	1.6	1.2	0.4	4.1	3.1	1.0
Clerical	4.5	3.4	--	2.5	2.2	--	6.3	5.5	--
Sales	3.2	2.2	--	1.6	1.3	--	4.0	3.2	--
Service occupations	4.4	3.5	0.9	2.8	2.5	0.3	7.0	6.2	0.9
Blue-collar occupations	5.2	4.0	1.2	3.3	2.9	0.4	8.2	7.2	1.0
Primary	4.5	3.5	--	2.8	2.5	--	7.1	6.2	--
Processing, machining and fabricating	5.4	4.1	1.4	3.2	2.8	0.4	8.1	7.1	1.0
Construction	4.6	3.4	1.1	2.9	2.5	0.4	7.2	6.3	0.9
Transport equipment operating	5.3	4.4	--	3.7	3.4	--	9.4	8.4	--
Material handling and other crafts	5.9	4.6	--	3.7	3.3	--	9.1	8.1	--
Age									
15 to 19	3.8	--	--	1.9	--	--	4.7	--	--
20 to 24	3.5	2.5	1.0	1.8	1.5	0.3	4.4	3.6	0.8
25 to 34	4.2	2.9	1.3	2.1	1.7	0.4	5.4	4.3	1.1
35 to 44	4.4	3.3	1.2	2.5	2.2	0.4	6.4	5.4	0.9
45 to 54	4.3	3.3	1.0	2.7	2.4	0.3	6.9	6.1	0.8
55 and over	5.8	4.8	1.0	4.2	3.9	0.4	10.6	9.7	0.9

Table (continued)

Absence rates of full-time paid workers by industry, occupation, age, sex and region, 1995

	Incidence			Inactivity rate			Days lost per worker in year		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
		%			%			days	
Women	7.8	4.2	3.6	5.3	2.7	2.6	13.3	6.7	6.6
Industry									
Goods-producing industries	8.1	4.3	3.8	5.4	2.8	2.6	13.6	7.0	6.5
Agriculture and other primary	--	--	--	--	--	--	--	--	--
Manufacturing	8.3	4.6	3.8	5.7	3.0	2.6	14.2	7.6	6.6
Durable manufacturing	8.3	4.7	3.6	5.7	3.2	2.6	14.3	7.9	6.4
Non-durable manufacturing	8.3	4.5	3.8	5.6	3.0	2.7	14.1	7.4	6.6
Construction	--	--	--	--	--	--	--	--	--
Service-producing industries	7.7	4.1	3.6	5.3	2.6	2.6	13.2	6.6	6.6
Transportation, communication and other utilities	9.0	5.0	3.9	6.5	3.5	3.0	16.2	8.7	7.5
Transportation and other utilities	9.1	5.3	--	6.4	3.7	--	16.0	9.3	--
Communication	8.8	4.7	4.1	6.6	3.2	3.4	16.4	8.0	8.4
Trade	7.3	3.5	3.8	5.1	2.3	2.8	12.8	5.7	7.0
Wholesale trade	7.7	3.2	4.5	5.4	2.0	3.4	13.4	5.0	8.4
Retail trade	7.2	3.6	3.5	5.0	2.4	2.6	12.6	6.0	6.6
Finance, insurance and real estate	7.7	3.8	3.9	5.1	2.3	2.8	12.7	5.6	7.1
Finance and insurance	7.8	4.0	3.9	5.3	2.4	2.9	13.2	5.9	7.3
Real estate and insurance agencies	7.1	--	--	4.3	--	--	10.9	--	--
Services	7.5	4.1	3.4	5.2	2.7	2.6	13.1	6.6	6.5
Education services	6.6	3.6	3.0	4.6	2.2	2.3	11.4	5.6	5.8
Health and social services	9.0	5.3	3.7	6.6	3.8	2.9	16.6	9.4	7.2
Business services	7.0	2.9	4.1	4.2	1.4	2.8	10.6	3.6	7.0
Accommodation, food and beverage services	6.6	3.3	3.3	5.0	2.3	2.7	12.5	5.7	6.8
Other services	5.9	3.3	2.7	3.9	2.0	1.8	9.7	5.1	4.6
Public administration	9.1	5.4	3.7	5.4	3.1	2.3	13.5	7.7	5.8
Federal administration	10.7	6.4	4.3	5.8	3.5	2.3	14.5	8.8	5.7
Provincial administration	8.4	5.1	3.3	5.2	3.0	2.2	13.0	7.5	5.5
Local administration	7.6	--	--	5.1	--	--	12.7	--	--
Occupation									
White-collar occupations	7.6	3.9	3.7	5.1	2.4	2.7	12.8	6.0	6.8
Managerial/administrative	6.9	3.3	3.6	4.3	1.9	2.5	10.8	4.6	6.2
Professional	8.4	4.5	3.9	6.0	2.9	3.0	14.9	7.4	7.5
Clerical	7.7	4.0	3.7	5.0	2.4	2.6	12.6	6.0	6.6
Sales	6.9	3.3	3.6	4.7	2.1	2.6	11.7	5.2	6.5
Service occupations	7.1	4.2	2.9	5.2	3.0	2.2	12.9	7.5	5.4
Blue-collar occupations	9.4	5.7	3.8	6.8	4.2	2.7	17.1	10.4	6.7
Primary	--	--	--	--	--	--	--	--	--
Processing, machining and fabricating	9.5	5.6	3.9	6.9	4.1	2.7	17.2	10.4	6.9
Construction	--	--	--	--	--	--	--	--	--
Transport equipment operating	--	--	--	--	--	--	--	--	--
Material handling and other crafts	9.5	5.8	--	6.9	4.0	--	17.3	10.1	--
Age									
15 to 19	--	--	--	--	--	--	--	--	--
20 to 24	6.9	3.3	3.6	4.4	1.6	2.8	11.1	4.0	7.0
25 to 34	10.9	3.9	7.0	8.0	2.3	5.7	20.0	5.7	14.3
35 to 44	6.6	4.1	2.5	4.1	2.6	1.5	10.2	6.5	3.7
45 to 54	5.7	4.5	1.2	3.7	3.3	0.5	9.3	8.1	1.2
55 and over	7.4	6.3	--	5.5	5.0	--	13.8	12.5	--

Table (continued)

Absence rates of full-time paid workers by industry, occupation, age, sex and region, 1995

	Incidence			Inactivity rate			Days lost per worker in year		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
		%			%			days	
Both sexes	5.8	3.6	2.2	3.7	2.4	1.3	9.1	5.9	3.2
Industry									
Goods-producing industries	5.5	3.7	1.8	3.4	2.5	0.9	8.6	6.4	2.2
Agriculture and other primary	4.6	3.1	1.5	2.9	2.2	0.6	7.1	5.5	1.6
Manufacturing	5.9	3.9	2.0	3.6	2.7	1.0	9.1	6.7	2.5
Durable manufacturing	5.6	3.8	1.8	3.4	2.6	0.8	8.4	6.5	1.9
Non-durable manufacturing	6.2	3.9	2.2	3.9	2.7	1.2	9.8	6.8	3.0
Construction	4.6	3.1	1.5	3.0	2.3	0.7	7.5	5.8	1.7
Service-producing industries	5.9	3.6	2.3	3.7	2.3	1.5	9.4	5.7	3.7
Transportation, communication and other utilities	5.8	4.0	1.8	3.8	2.8	1.0	9.4	7.0	2.4
Transportation and other utilities	6.0	4.3	1.7	3.9	3.1	0.8	9.7	7.7	1.9
Communication	5.5	3.3	2.1	3.6	2.2	1.4	9.0	5.5	3.5
Trade	5.4	3.2	2.2	3.3	2.0	1.3	8.4	5.1	3.2
Wholesale trade	4.9	2.7	2.2	2.8	1.7	1.2	7.1	4.1	3.0
Retail trade	5.6	3.4	2.2	3.6	2.3	1.4	9.0	5.6	3.4
Finance, insurance and real estate	6.0	3.2	2.8	3.7	1.8	1.8	9.2	4.6	4.6
Finance and insurance	6.3	3.4	2.9	3.9	1.9	2.0	9.7	4.8	4.9
Real estate and insurance agencies	5.3	--	--	3.0	--	--	7.4	--	--
Services	5.9	3.5	2.5	3.9	2.2	1.7	9.7	5.5	4.2
Education services	5.4	3.3	2.1	3.5	2.0	1.5	8.8	5.1	3.7
Health and social services	8.2	5.0	3.2	5.9	3.5	2.4	14.7	8.8	6.0
Business services	4.8	2.4	2.5	2.6	1.2	1.4	6.4	2.9	3.5
Accommodation, food and beverage services	4.9	2.7	2.2	3.5	1.8	1.7	8.7	4.5	4.2
Other services	4.8	2.9	1.9	2.9	1.8	1.1	7.2	4.5	2.7
Public administration	6.9	4.6	2.3	3.9	2.8	1.2	9.9	6.9	2.9
Federal administration	8.5	5.7	2.7	4.5	3.3	1.2	11.4	8.2	3.1
Provincial administration	6.6	4.3	2.3	3.9	2.6	1.3	9.7	6.5	3.2
Local administration	5.4	3.7	--	3.3	2.4	--	8.3	5.9	--
Occupation									
White-collar occupations	5.8	3.2	2.6	3.6	1.9	1.6	8.9	4.8	4.1
Managerial/administrative	4.8	2.6	2.2	2.7	1.5	1.3	6.8	3.7	3.1
Professional	6.1	3.5	2.6	3.9	2.1	1.8	9.7	5.3	4.4
Clerical	7.0	3.9	3.1	4.5	2.4	2.1	11.2	5.9	5.3
Sales	4.8	2.7	2.1	2.9	1.6	1.3	7.2	4.0	3.2
Service occupations	5.7	3.8	1.8	3.9	2.7	1.2	9.8	6.8	3.0
Blue-collar occupations	5.8	4.2	1.6	3.8	3.1	0.7	9.4	7.6	1.7
Primary	4.8	3.5	--	3.0	2.5	--	7.6	6.2	--
Processing, machining and fabricating	6.2	4.3	1.9	3.9	3.1	0.8	9.8	7.7	2.1
Construction	4.7	3.5	1.2	2.9	2.6	0.4	7.3	6.4	1.0
Transport equipment operating	5.8	4.6	1.1	4.1	3.6	0.5	10.2	9.0	1.3
Material handling and other crafts	6.6	4.8	1.8	4.3	3.4	0.9	10.7	8.5	2.2
Age									
15 to 19	4.3	2.7	--	2.2	1.4	--	5.5	3.4	--
20 to 24	5.0	2.9	2.1	2.9	1.5	1.4	7.2	3.8	3.4
25 to 34	7.1	3.3	3.8	4.5	1.9	2.6	11.4	4.9	6.5
35 to 44	5.4	3.6	1.7	3.2	2.3	0.8	7.9	5.9	2.1
45 to 54	4.9	3.8	1.1	3.1	2.8	0.4	7.9	6.9	0.9
55 and over	6.4	5.3	1.0	4.7	4.3	0.4	11.7	10.7	1.0

Table (concluded)

Absence rates of full-time paid workers by industry, occupation, age, sex and region, 1995

	Incidence			Inactivity rate			Days lost per worker in year		
	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities	Total	Illness or disability	Personal or family responsibilities
	%		%		days				
Both sexes – concluded									
Region									
Atlantic	5.6	3.7	1.8	3.5	2.5	1.0	8.8	6.3	2.6
Newfoundland	5.9	4.1	--	3.9	2.8	--	9.7	7.1	--
Prince Edward Island	--	--	--	--	--	--	--	--	--
Nova Scotia	5.8	3.9	2.0	3.7	2.6	1.0	9.1	6.6	2.6
New Brunswick	5.1	3.4	--	3.1	2.2	--	7.9	5.5	--
Quebec	6.4	4.0	2.4	4.2	2.8	1.5	10.6	6.9	3.7
Ontario	5.4	3.2	2.1	3.4	2.1	1.3	8.5	5.2	3.3
Prairies	5.8	3.6	2.3	3.3	2.1	1.2	8.3	5.3	3.0
Manitoba	6.8	4.3	2.5	3.8	2.5	1.3	9.5	6.4	3.1
Saskatchewan	6.0	3.6	2.5	3.4	2.1	1.3	8.6	5.3	3.3
Alberta	5.4	3.3	2.1	3.1	2.0	1.1	7.7	5.0	2.8
British Columbia	6.2	4.1	2.1	3.8	2.6	1.2	9.6	6.6	3.0

Source: Labour Force Survey

■ Notes

1 This definition reflects the January 1996 change in classification of work status. No matter how many jobs a person holds, the hours of the main job must number at least 30 per week. The definition used in the 1995 publication was slightly different. For an explanation of the LFS revisions, see Statistics Canada (1996).

2 The redesigned LFS questionnaire, scheduled for implementation in 1997, will break personal or family responsibilities into sub-categories (for example, care of own children, care of elderly family members, maternity leave). The new categories will permit the elimination of maternity leave from the rates

and will greatly enhance the analytical usefulness of the LFS data for estimating work absence rates.

3 See Akyeampong (1988, 1992 and 1995) for further details.

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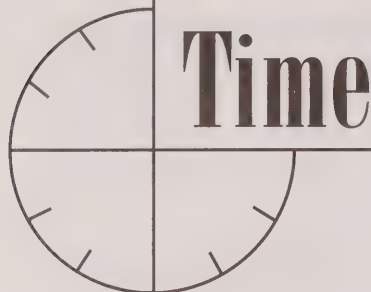
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You wear it well: Health of older workers

Susan Crompton

The aging of the workforce is of growing interest to employers and human resource professionals. One reason is that health often begins to deteriorate as people age. This may mean simply a few extra days off work each year, or it could lead to a shift from full- to part-time status for some workers. In addition, employers who provide health care benefits may need to pay higher insurance premiums associated with increased pay-outs.

This article presents selected health indicators for workers aged 50 to 64 to assess whether their health differs much from that of workers in their thirties (see *Definitions*). It makes no attempt to link health status and socioeconomic characteristics, which play a large role in an individual's health; these factors are more properly discussed in other journals.¹ Indicators for men and women are examined separately, because their health profiles and work history differ considerably, especially among older workers. And since most adult men are full-time workers, indicators are provided only for men employed 30 hours or more per week² (see *Data sources*).

Some health indicators for men employed full time

Almost 6 million adult men worked full time in 1994. One-fifth of them were between 50 and 64 years old; over one-third were between 30 and 39 (Chart A). Most believed they were in good shape, with one-quarter of older workers describing their health as excellent. And they seem to be justified in doing so. Almost no men aged 50 to 64

Definitions

Worker: adult aged 25 to 64 working for pay or profit at the time the survey was conducted. National Population Health Survey (NPHS) data include self-employed workers as well as those working for others; the General Social Survey (GSS) data on health insurance provided by employers cover employees only.

Full-time: working 30 hours or more per week in the main job

Part-time: working less than 30 hours in the main job

Older: worker aged 50 to 64

Younger: worker aged 30 to 39

Cognitive function: ability to remember things, to think clearly and to solve day-to-day problems. Cognitive function is measured on a five-point scale ranging from "no cognitive problems" to "a great deal of difficulty in thinking or solving problems, and/or very forgetful or unable to remember."

Dexterity: ability to use hands or fingers and to grasp and manipulate small objects like pencils and scissors. It is measured on a three-point scale ranging from "no problems" to "need help."

Disability days: the total number of days during the two weeks preceding the survey in which a worker stayed in bed all or most of the day, or cut down on activities for all or most of the day, because of illness or injury.

Injury: injury that occurred sometime in the 12 months preceding the survey and was serious enough to limit normal activities, for example, a broken bone, bad cut or burn, sore back, sprained ankle or poisoning.

working full time had difficulty speaking, using their hands (dexterity), or getting around (mobility). But compared with men in their thirties, they were much less likely to have 20/20 vision (79% wore

Long-term health condition: a health condition diagnosed by a health professional that has lasted or is expected to last 6 months or more. An individual may have more than one long-term health condition. Also referred to as *chronic health problem*.

Mobility: ability to walk around the neighbourhood without mechanical supports such as braces, cane or crutches. It is measured on a four-point scale ranging from "no problems" to "cannot walk."

Pain or discomfort: to some extent may limit normal day-to-day activity. It is measured on a five-point scale ranging from "no pain or discomfort" to "pain prevents most activities."

Speech: ability to be understood completely in one's own language when one is talking to strangers who speak the same language. Speech function is classified as "no problem" or "partially/not understood."

Vision: ability to see. It is measured on a five-point scale ranging from "no problems" and "problem corrected by lenses" to "incorrectable problems and no sight."

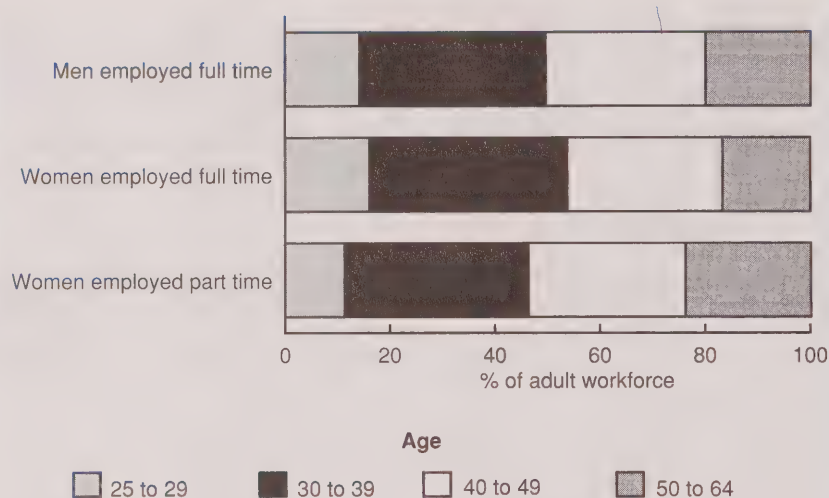
Visits to doctor: number of consultations with a general practitioner or other medical doctor in the previous 12 months. No visits would be counted as "less than three visits."

Statistically significant difference: the difference between two sample estimates – for example, incidence of arthritis in two separate age groups – is sufficiently large that there is a 95% probability that actual values are different in the population.

glasses, versus 26% of men 30 to 39) and their hearing was less acute (about 6% had some trouble hearing clearly, compared with almost no younger workers).

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Chart A

Workers in their thirties form a plurality of the workforce.

Source: National Population Health Survey, 1994

Note: The sample size for men employed part time was too small to produce reliable estimates.

thirds of older workers reporting pain or discomfort acknowledged that it prevented them from participating in at least a few normal activities;⁴ by contrast, only about half the younger men living with pain reported that it limited their activities.

Even though they live with more pain than younger men, working men aged 50 to 64 are less likely to have taken time from work or other activities to recover from illness or injury. In the two weeks preceding the survey, only 8% versus 14% of men in their thirties had spent time in bed or had cut back on their activities.⁵ One reason for this difference may be that younger men are almost twice as likely to suffer injuries – 22% compared with 12% of working men aged 50 to 64. About half the injuries reported by both younger and older working men are job-related.

The apparent loss of some cognitive function (ability to remember and problem-solve) may lend some credence to the notion that the faculties do diminish with age; 28% of working men in their fifties and early sixties reported some difficulties. However, since 26% of men in their thirties also confessed to such lapses, the real issue is not the existence of some difficulty but rather its severity. In fact, older men simply describe themselves as "somewhat forgetful" more often than younger workers do (21% versus 15%).

Fear of losing one's faculties as one grows older may be unfounded, but claims about the aches and pains of aging are borne out by the data. About 16% of working men 50 to 64 were troubled by pain or discomfort – versus less than 10% of workers in their thirties – and were more likely to be affected by it in their day-to-day lives. Almost two-

Table 1

Selected long-term health conditions, by workers' age and status

	Men			Women					
	Full-time workers			Full-time workers			Part-time workers		
	All 25 to 64	30 to 39	50 to 64	All 25 to 64	30 to 39	50 to 64	All 25 to 64	30 to 39	50 to 64
	% reporting condition								
With long-term health condition*	47	44	60	50	48	55	56	49	73
Allergies	18	22	13	23	25	19	23	22	24
Arthritis or rheumatism	6	4	14	8	5	18	12	--	33
Asthma	4	5	--	5	4	--	6	--	--
Back problems**	15	13	20	12	12	13	14	--	18
Diabetes	2	--	6	--	--	--	--	--	--
High blood pressure	5	--	13	5	--	11	7	--	20
Migraines	4	3	--	12	14	--	12	--	--
Sinusitis	3	3	--	5	5	--	7	--	--

Source: National Population Health Survey, 1994

Note: The sample size for men working part time was too small to produce reliable estimates. The NPHS allowed for multiple responses.

* See Definitions.

** Excluding arthritis.

Data sources

Data in the main body of this article are drawn from the 1994 NPHS; supplementary data on employer-sponsored health care coverage are drawn from the 1991 GSS (see *Employer-sponsored health care coverage*).

The NPHS, first held in 1994, is a longitudinal survey conducted every two years. It provides information about the health of the population and the factors that affect health, and includes questions about health status (self-perception of health, functional ability, chronic conditions and activity restriction);³ use of health services (visits to health care providers, hospital care and drug use); risk factors (smoking, alcohol use and physical activity); and demographic and socioeconomic status. A special focus of the 1994 survey was psychosocial factors that may influence health, such as stress, self-esteem and social support.

The NPHS selected a sample of almost 26,500 households, and divided the sample into four groups. Each quarter, data were collected from one of the groups in order to offset seasonal variations in the information provided. In each household, some limited information was gathered from all household members; then

one person aged 12 years or over was randomly selected to answer more in-depth questions about his or her health.

The GSS is an annual cross-sectional survey first conducted in 1985. It addresses a broad range of social issues, and monitors changes in conditions over time. The survey has two tiers of content questions. The "core content," repeated every fifth year, covers one of five subject areas: health and social support, time use, personal risk, education and work, and family. The "focus content" provides data about specific issues of current or emerging policy interest, and is not usually repeated.

This article draws on data from the 1991 GSS health cycle, which looked at the standard health variables as well as job benefits provided by employers. (Data on employer-sponsored health care plans will be available from the 1996 NPHS.) The GSS sample of 11,900 households was evenly distributed over the 12 months of 1991 in order to control for seasonal effects. (For more information about the labour-related variables available from the first 11 GSS cycles, see "What's new?" Summer 1996.)

Older workers also tended to visit the doctor more frequently. Although the majority (61%) of men 50 to 64 had seen a doctor fewer than three times in the past year, 23% had had over five appointments. Only 15% of working men in their thirties had seen a medical doctor more often than five times in the previous 12 months.

Use of medication by older working men

Being more susceptible to chronic health problems and pain or discomfort, older workers were more likely to use medication, whether prescribed or purchased "over-the-counter." Although most full-time working men, regardless of age,

had taken some kind of medication in the previous month, 41% of older versus 26% of younger workers had done so in the past two days. Furthermore, older men were almost twice as likely to have taken more than one: among workers who had taken some kind of medication in the last two days, 44% of men aged 50 to 64 had used at least two types, compared with less than one-quarter of younger men aged 30 to 39.

The drug most frequently used in the previous month by older working men was some type of pain reliever (taken by 52% of all working men aged 50 to 64). The second most common was medication for high blood pressure (12%), followed by cough or cold medicine, stomach remedies, over-the-counter allergy medicine and penicillin or other antibiotic. Working men in their thirties were even more likely to use analgesics than their older counterparts, with 62% of them taking a pain reliever at least once in the previous month. They also made more frequent use of over-the-counter medications, such as cough or cold medicine and allergy medication (Table 2).

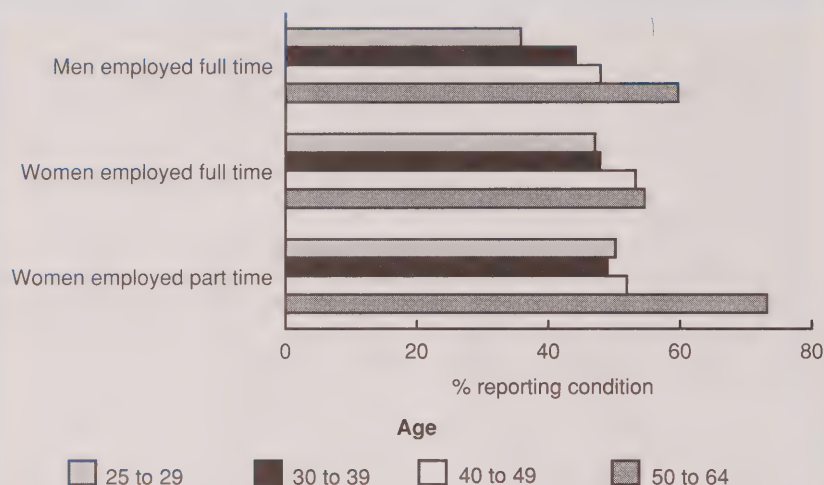
Some health indicators for working women

In 1994, slightly less than 3.7 million adult women in Canada were working full time; about 17% of them were aged 50 to 64 while 38% were in their thirties. Another 1.2 million worked less than 30 hours a week; older women were somewhat over-represented in the part-time workforce, accounting for 24% of part-timers (Chart A). Since most women work in full-time jobs, the discussion of health indicators in this section focuses on full-time workers; comparisons of full- and part-time workers are presented for older women only when the differences are statistically significant.

Chronic health problems of older working men

It is not surprising that working men aged 50 to 64 complained more often about aches and pains, since about 60% reported at least one long-term health condition (Chart B). The most common diagnoses were back problems (20% of all older male workers) and arthritis or rheumatism (14%). Other conditions often identified were allergies, high blood pressure and diabetes. By contrast, 44% of working men in their thirties had a chronic health problem; most common were allergies (22% of all younger male workers) and back problems (13%) (Table 1).

Chart B

Older workers are more likely to have a long-term health condition *.

Source: National Population Health Survey, 1994

Note: The sample size for men employed part time was too small to produce reliable estimates. The NPHS allowed for multiple responses.

* See Definitions.

older (13%) or younger (15%) full-time workers. About two-thirds of pain sufferers of all ages reported having difficulty in at least a few of their day-to-day activities.

A greater proportion of younger women spent time in bed or cut down on their activities because of illness or injury. About 15% of full-time workers in their thirties, compared with only 10% of older full-timers, had been indisposed in the previous two weeks. However, once women were obliged to take time off, most took at least three days to return to their normal activities, regardless of age.

Health problems most common among older women

Not surprisingly, older women are more likely to have chronic health problems (Chart B). Less than half (48%) of full-time workers in their thirties had a long-term health condition; among older women, almost

Older women have more aches and pains

Most women in their fifties and early sixties working full time described themselves as healthy, and fully 26% believed their health was excellent. Not surprisingly, their basic faculties were as good as those of women in their thirties: almost no one had trouble with mobility, dexterity, speech or hearing. Some 84% of older women wore glasses, compared with 37% of younger women. About one-quarter of both older and younger women in full-time jobs admitted having trouble with "cognitive function"; however, most of them were simply "somewhat forgetful": 18% of older and 14% of younger women.

Aches and pains were most common among women aged 50 to 64 working part time. One-quarter of these older workers reported some pain or discomfort, almost twice as high as the proportion of either

Table 2

Medication most commonly used in the previous month, by workers' age and status

	Men			Women					
	Full-time workers			Full-time workers			Part-time workers		
	All 25 to 64	30 to 39	50 to 64	All 25 to 64	30 to 39	50 to 64	All 25 to 64	30 to 39	50 to 64
% using medication									
Allergy medicine (over-the-counter)	10	12	6	13	11	14	13	--	--
Codeine, Demerol	4	5	--	5	4	--	4	--	--
Cough/cold medicine	15	18	11	15	16	9	15	14	--
High blood pressure medication	4	--	12	4	--	10	5	--	16
Pain relievers	58	62	52	69	72	62	71	72	62
Penicillin or other antibiotics	7	7	6	11	11	8	9	--	--
Stomach remedies	8	7	8	7	6	9	10	--	--
Hormone therapy	...	...	...	8	--	28	10	--	24
Oral contraceptives	...	...	...	13	15	-	10	--	-

Source: National Population Health Survey, 1994

Note: The sample size for men employed part time was too small to produce reliable estimates. The NPHS allowed for multiple responses.

Employer-sponsored health care coverage

Most workers are provided with some health care benefits by their employer. The cost of these plans may be borne entirely by the employer or shared with the employee. According to the 1991 General Social Survey, about 84% of men and 76% of women working full time had some form of employer-sponsored health-related coverage (also referred to as *extra* or *additional coverage*): either medical/surgical benefits beyond those provided by their provincial health plan, or a dental plan, a disability or survivor's benefits plan, a counselling service, paid maternity/paternity leave, or some combination of these five.

The health status of working men in full-time jobs was similar whether they had additional coverage or not. Their basic faculties – hearing, vision (including problems corrected with glasses), speech, mobility, dexterity and cognitive function – were sound. About one in six was living with some pain or discomfort. Men with coverage were more apt to report chronic health problems (57% compared with 55% of men without coverage), and

those without seem more likely to suffer from arthritis, but these differences are not statistically significant.

The basic faculties of women working full time were also sound, whether or not they held a job that provided extra health care coverage. Many women – 60% of those with or without benefits – had at least one long-term health problem. The most common conditions reported were allergies, arthritis, and migraines, although allergies were the only problem for which there was a statistically significant difference between the two groups. Among women employed part time, those without coverage were more likely to have health problems (73%) than those with benefits (63%). They were more prone to suffer from allergies, with 44% having either hay fever or some other allergy (or both).

Unfortunately, the small sample size for employees without employer-sponsored health care benefits precludes the calculation of meaningful estimates for individual age groups; therefore, results are presented only for all adult workers aged 25 to 64.

Employer-sponsored health care coverage for employees aged 25 to 64

	Men		Women			
	Full-time		Full-time		Part-time	
	With additional coverage	Without additional coverage	With additional coverage	Without additional coverage	With additional coverage	Without additional coverage
	%					
With chronic health problems *	57	55	60	60	63	73
High blood pressure	16	13	11	13	--	13
Heart trouble	3	--	3	--	--	--
Diabetes	2	--	--	--	--	--
Arthritis	13	18	13	18	22	23
Asthma	5	--	4	--	--	--
Emphysema	4	--	6	7	--	--
Ulcers	4	--	4	--	--	--
Other digestive problems	6	8	6	--	--	10
Migraines	5	--	14	17	17	13
Emotional disorders	3	--	4	7	--	--
High blood cholesterol	9	--	7	7	--	--
Hay fever and/or other allergies	28	26	42	32	37	44

Source: General Social Survey, 1991

Note: The sample size for men employed part time was too small to produce reliable estimates. Some employees may have reported more than one chronic health problem.

* See Definitions.

55% of full-time and 73% of part-time workers had been so diagnosed.⁶ The most common chronic health problems among older women, regardless of their hours of work, were arthritis or rheumatism and allergies. Back problems due to causes other than arthritis, as well as high blood pressure and migraines, were also common afflictions. Older women in part-time jobs were more likely than their contemporaries in full-time jobs to have arthritis or high blood pressure. Meanwhile, the most common health complaints among younger women working full time were allergies, migraines and back problems (Table 1).

Although their general health status was often not as good as that of younger women, full-time working women aged 50 to 64 did not see their doctors any more frequently: 27% of older and 32% of younger women had made more than five visits to a doctor in the previous 12 months.

More than four in five working women of all ages had taken a prescribed or over-the-counter drug in the month preceding the survey. But older women were much more likely to have used something recently: 65% of part-timers and 57% of full-timers had taken medication in the previous two days, compared with 42% of full-timers aged 30 to 39. Furthermore, over half of all older women who had used drugs recently had taken more than one type; among working women in their thirties, less than one-third had used two or more.

Pain relievers were the medication used most often by older working women, with 62% of both full- and part-timers aged 50 to 64 taking an analgesic in the previous month. Used less frequently were drugs for hormone replacement therapy, over-the-counter allergy medicines, medication to control high blood pressure, and cough or

cold medicine. There were no statistically significant differences between full- and part-timers in their use of such drugs, with the exception of medication for high blood pressure: 16% of older part-timers had used it in the previous month, compared with 10% of women the same age in full-time jobs. Working women in their thirties also used pain relievers more often than any other drug; 72% had taken them at least once in the previous month. Other medications frequently used by younger women in full-time jobs were cough or cold medicine, oral contraceptives, penicillin or other antibiotics, and over-the-counter allergy medicines (Table 2).

Summary

On the whole, it appears that Canadian workers are aging well. Working men and women in their fifties and early sixties are as much masters of their faculties – hearing, memory, problem-solving, dexterity, mobility – as are men and women in their thirties. Certainly, they live with more aches and pains than younger workers, and are more likely to suffer from long-term health conditions. But even the most common of these chronic ailments – back problems, arthritis, allergies and high blood pressure – affect fewer than about one in five older workers.

At first glance, it seems that women are in better shape than

men: older women working full time are less likely to experience a variety of chronic health problems than their male counterparts. However, many older women work part time because of illness or poor health. Therefore, it seems reasonable to conclude that older men are no less healthy than their female contemporaries; they simply continue to work full time even if their health is not good. □

Notes

1 See, for example, Roberge, Berthelot and Wolfson (1995) and Geran (1992).

2 The sample sizes for part-time male workers are often so small as to prevent release of estimates.

3 Some readers may notice that the estimates produced by the NPHS and the GSS differ slightly from those of the 1991 Health and Activity Limitation Survey (HALS). These differences stem from the surveys' different purposes: HALS was explicitly designed to collect data on disabilities, and uses different criteria to assess disability than the NPHS and GSS, which were designed to collect information about general health. For example, HALS asks a whole sequence of questions about ease of physical movement in order to classify the respondent's level of mobility impairment – ability to walk two or three city blocks, to walk up and down stairs, to move from room to room, to stand. In contrast, the NPHS asks only if the respondent can walk around the neighbourhood without aids such as crutches or a brace.

4 Data on "normal activities" include work as well as other activities. The NPHS does not differentiate between time absent from work and time off from other activities.

5 These findings can be loosely compared with data from the Labour Force Survey (LFS), which show that older workers are more likely to be absent from work because of illness or disability. For example, in 1994, almost 5% of male full-time workers aged 55 and over were absent from work in any given week, and lost an average of 9.7 days over the course of the year. In contrast, only 3.2% of their counterparts aged 35 to 44 were away during an average week, and they accumulated an average of only 5.5 days' absence in 1994. One reason the LFS and the NPHS reach different conclusions is that the latter includes the days people cut back on their activities for all or most of the day in addition to days they spent in bed all or most of the day because of illness or injury. Furthermore, the NPHS makes no distinction between work and other daily activities, and it covers a two-week period instead of a full 12 months.

6 The high incidence of long-term health conditions among part-time female workers aged 50 to 64 is not unexpected, since many older women work part time because of illness or poor health (Logan, 1994).

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A sure bet industry

Katherine Marshall

Over the past 10 years government-regulated gambling operations have become commonplace in Canada. Since 1989, five provinces have established government-owned casinos. Lottery logos are commonly seen in convenience stores, with more than 35,000 retailers across the country selling government-sponsored lottery tickets. According to the provincial and regional lottery corporations, gross sales of lottery tickets in the 1994-95 fiscal year surpassed \$5 billion.

This burgeoning industry appears to be a good bet for government, creating new jobs, as well as generating profit. This article briefly traces the evolution of legal gambling in Canada and examines employment growth in the industry, as well as the characteristics of its workers and jobs. It also looks at who plays the lottery, and at how net revenue from government-run gambling has grown (see *Definitions*).

Legal gambling has existed for over 25 years

In 1969, the *Criminal Code* was revised to permit the federal and provincial governments to regulate and participate in a range of lottery schemes; charities were also allowed to conduct and profit from a similar, but narrower range of activities. Except for horse racing (see *Horse racing*) and the lottery schemes just mentioned, gambling is illegal in Canada.

The first national lottery helped finance the 1976 Olympic Games. In 1979, the federal government,

Definitions

Full- and part-time work status: The Labour Force Survey assigns full-time status to all persons who usually work at least 30 hours a week at their main or sole job. Those who work less than 30 hours a week at their main or sole job are considered part-time. The Survey of Consumer Finances bases full- and part-time status on all jobs combined and on the respondents' report of whether the total work was mostly full- or part-time.

Gambling operation: Any establishment primarily engaged in legal gambling, such as casinos, lotteries and bingos. Horse racing is excluded because it is classified as a commercial spectator sport.

through its agent, Loto Canada Inc., withdrew from the sale of lottery tickets, granting sole control over public gambling to the provinces.

Gambling revenue: Consists of all net revenue generated from provincial and territorial government-run lotteries, casinos and video lottery terminals (VLTs); gambling revenue from charities and Indian reserves is excluded. Net revenue refers to total consumer expenditure on gambling, less prizes and winnings.

Video lottery terminal (VLT): A coin-operated, free-standing electronic game of chance. Winnings are paid out through a computer-receipt system (in contrast to the instant cash payment provided by slot machines located in casinos).

Since then, provinces have licensed and regulated this activity, within the confines of the *Criminal Code*.

Chart A
Employment in gambling * is rising.



Source: Labour Force Survey

* Excludes horse racing (see Definitions).

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Table 1
Characteristics of workers and jobs in gambling and non-gambling industries, 1995

	Gambling	Non-gambling
	%	
Sex		
Men	44	55
Women	56	45
Age		
15 to 34	59	42
35 and over	41	58
Education		
High school graduation or less *	59	51
Postsecondary certificate, diploma or degree	41	49
Occupation		
Artistic, literary and recreational	38	2
Clerical	27	15
All other occupations	35	83
Work status		
Full-time **	69	81
Part-time **	31	19
	\$	
Median earnings (1994)		
Full-time †	29,000	33,300
Part-time †	8,000	9,300

Sources: Labour Force Survey and Survey of Consumer Finances

* May include some postsecondary education that was not completed.

** Status according to the Labour Force Survey (see Definitions).

† Status according to the Survey of Consumer Finances (see Definitions).

Employment quadruples in a decade

In 1995, the gambling industry³ employed 24,000, up from just 6,000 in 1984 (Chart A). The big jumps in employment in 1994 and again in 1995 likely owe much to the trend toward more and larger government-run casino operations.⁴

The gambling industry indirectly bolsters employment in other industries as well; for example, casinos require goods and services such as food, game equipment and supplies, advertising and cleaning. Patrons contribute to the local economy through tourism: the largest casino in Canada, Casino Windsor, reports that 80% of its patrons are tourists, and of these 82% are

American. Furthermore, most provinces spend millions of dollars in lottery profits on hospitals, voluntary social service organizations, and sport, recreational and cultural projects, generating further employment.

Youths, women and part-time workers are prominent

Compared with other industries, there is an above average representation of women and youths employed in the gambling industry (Table 1). In 1995, 56% of those employed in gambling were women, who accounted for just 45% in other industries; and 6 out of 10 employees were under 35 years of age.

People employed in gambling were somewhat less likely to have obtained a postsecondary certificate, diploma or degree: 41% reached this level, compared with 49% of employees in non-gambling. Some schools are beginning to respond to the need for specially trained casino workers. For example, St. Clair College in Windsor, influenced by the employment needs of Casino Windsor, now offers certificate courses on card dealing and slot machine repair.

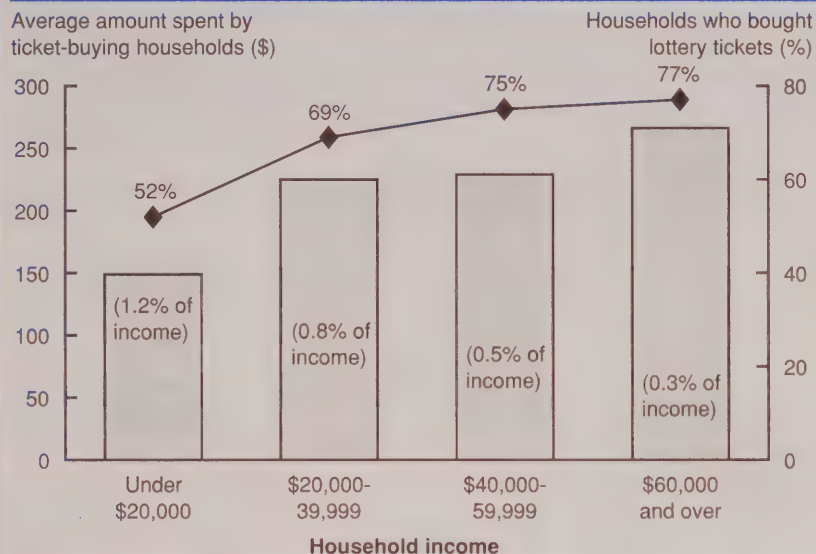
Most jobs in the gambling industry are concentrated in two major occupational groups – artistic, literary and recreational (38%), and clerical (27%). Within these two major groups, two specific jobs accounted for almost half of all employment in gambling: sports and recreation attendants (28%), and tellers and cashiers (16%).

Nearly one-third of those employed in the gambling industry work part time; just 19% of employees in other industries do so. On average, both full- and part-time employment in gambling pay less than in other industries. At \$29,000, the median earnings for full-time employment in gambling in 1994 were \$4,300 less than those for non-gambling employment (\$33,300). Part-time workers in the gambling industry earned an average of \$1,300 less than those in other industries: \$8,000 versus \$9,300. The earnings differential may be partly explained by the fact that those workers are younger and less educated than employees outside the industry.

Who plays the lottery?

In 1992, 69% of Canadian households bought government-run lottery tickets and spent an average of \$225.⁵ High income households spent more on lottery tickets than lower income households, although the amount represents less of their total income. In

Chart B

Lottery play is tied to household income.

Source: Family Expenditure Survey, 1992

Note: Bars represent average amount spent. Numbers inside bars represent annual expenditure as a percentage of total household income.

1992, only a little over half (52%) of households with incomes below \$20,000 bought lottery tickets, spending an average of \$149 over the year – 1.2% of their average income (Chart B). In contrast, three-quarters (77%) of households with incomes of \$60,000 or more bought lottery tickets that year, and these buyers spent an average of \$266, or 0.3% of their income.

Gambling revenue more than triples in a decade

Although the provinces pay a set fee⁶ to the federal government for sole gambling rights, net revenue from lotteries, casinos and video lottery terminals (VLTs) has increased steadily since 1970, making substantial gains in the past decade. Net revenue reached \$1.3 billion in 1985, and had more than tripled by 1994. In 1995, net revenue was nearly four times that of 1985 (Chart C). In 1985, gambling revenue made up 1.7% of the total

Chart C

Net revenue * from government-run gambling was almost \$5 billion in 1995.

Source: National Accounts

* Refers to the total revenue brought in from lotteries, casinos and VLTs, minus prizes and winnings returned.

Table 2

Net gambling revenue – sources, and as a percentage of total revenue

	Gambling as % of total 1994 revenue*	Source of gambling revenue, 1993-94		
		Provincial lotteries	Casinos	Video lottery terminals (VLTs)
			%	
Newfoundland	4.1	55	Not permitted	45
Prince Edward Island	5.4	41	Not permitted	59
Nova Scotia	5.6	43	Introduced in 1995	57
New Brunswick	4.8	47	Not permitted	53
Quebec	3.1	88	12 **	Introduced in 1994
Ontario	3.1	100	Introduced in 1994	Introduced in 1996
Manitoba	4.2	24	32	43
Saskatchewan	2.9	38	Introduced in 1996	62
Alberta	3.8	41	Not permitted	59
British Columbia	2.1	100	Not permitted	Not permitted
Yukon and Northwest Territories	1.7	100	Not permitted	Not permitted

Sources: National Accounts and Indian Affairs and Northern Development

* Includes all taxes and investment income, but excludes transfers from other governments.

** This represents six months of the 1993-94 fiscal year.

received from taxes and investments for all provincial governments; by 1995 this proportion had increased to 3.8%.

Until 1991, all revenue from government-run gambling was derived from lotteries alone. In 1992, VLTs accounted for 3% of the total, and lotteries, 97%. Although revenue from lotteries continues to increase annually and still accounts for most of the revenue obtained from gambling, its share is dropping: by 1995, lotteries represented 62% of the total, casinos, 18% and VLTs, 20%.

Type of gambling revenue differs by province

By the early 1990s a number of provinces had begun operating casinos and VLTs (Table 2). In 1993, in Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan and Alberta, lotteries no longer accounted for most net gambling revenue. And Manitoba, the only province to offer all three types of gambling (lotteries, casinos and VLTs), drew only 24%

of its gambling revenue from lotteries. As of 1996, Nova Scotia, Quebec, Ontario and Saskatchewan permit all three types.

In 1994, revenue from gambling accounted for at least 4.1% of total government revenue in each of the Atlantic provinces. With the exception of Manitoba (4.2%) and Alberta (3.8%), the rest of the country reported considerably smaller figures, ranging from a low of 1.7% for the Yukon and Northwest Territories to a high of 3.1% for both Ontario and Quebec. Gambling provided a much smaller proportion of total government revenue in provinces with no VLTs.

Conclusion

Provincial and regional lottery corporations promote the notion that gambling or "gaming," particularly lottery play, is a relatively cheap form of fun and entertainment for Canadian adults. With net revenue from gambling almost \$5 billion, it is not surprising to find provincial governments increasing their investment in new gambling

schemes – namely, casinos and VLTs – because the chance for new jobs and more revenue appears to be a sure bet. □

Notes

1 In 1867, the new nation of Canada assumed existing British laws, including one that considered gambling a criminal activity. In 1886, parliament revised that law, to allow betting on horse races.

2 Since legalized in 1989, licensed off-site betting theatres have become increasingly popular; therefore, as of 1994 the parimutuel agency no longer records on-track attendance. Unless otherwise noted, all dates refer to calendar years.

3 This refers to employment within establishments primarily engaged in gambling. For example, a job bartending at a casino falls within the gambling industry. However, a job that involves selling lottery tickets at a kiosk or convenience store would fall within the retail or service industries. Some employment may be attributed to charity-run gambling, such as paid positions in a bingo hall.

Employment figures for gambling are underestimated because the Labour Force Survey does not cover Indian reserves. Many reserves, through provincial/territorial

Horse racing

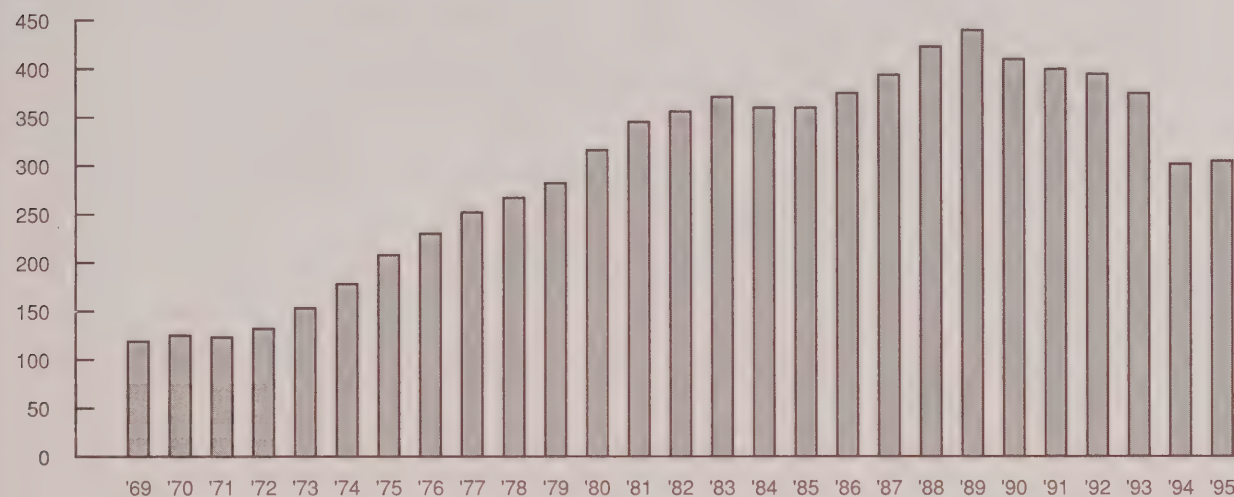
Other than government and charity-run lotteries and casinos, horse racing is the only legal¹ venue for gambling in Canada. However, this industry, also government-regulated, has been

declining for a number of years, some would argue, because of the ever increasing popularity of lottery and casino play. The net revenue generated from horse racing reflects the stagnation of

the industry: returns peaked in 1989 (\$440 million), and by 1995 had decreased to \$305 million. On-track annual attendance was 11.6 million in 1989; by 1993² it was 9.8 million.

Net revenue * from horse racing has fallen steadily since 1989.

\$ millions (current)



Source: National Accounts

* Refers to the total revenue brought in from on- and off-site horse racing, minus prizes and winnings returned.

agreements, control and run gambling activities such as lotteries, casinos and video lottery terminals (VLTs).

4 Casino de Montréal, which opened in October 1993, employs 1,860 workers; Casino Windsor, in operation since May 1994, employs 2,400.

5 Respondents consistently underreport their expenditures on government-run lotteries. Also, since cash casinos and VLTs are such recent phenomena, there were no categories for these expenditures on the 1992 Family Expenditure Survey.

6 The agreement stipulates that the provinces must jointly pay the federal government the equivalent of \$24 million, in 1979 dollars, each year.

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Transfer payments to families with children

Susan Crompton

In the 1990s, families have earned less real income from employment and other market activities than they did in the late 1980s. Many have had to rely more heavily on transfer payments from the government – Unemployment Insurance, social assistance, Child Tax Credit, Family Allowance and so on. However, with governments practising fiscal restraint, the average value of transfer payments may start to decline, and unless their market income improves, more families could find themselves struggling financially.

This article examines two aspects of transfer payments to non-elderly families with children under the age of 18 (see *Data sources, definitions and limitations*). It looks at trends in average transfer payments to families with dependent children between 1980 and 1994, to see how transfers have responded to changes in the business cycle. It also considers how effective these payments have been in raising the incomes of families with children above the low income cut-offs, or LICOs. Amounts are expressed in 1994 dollars.

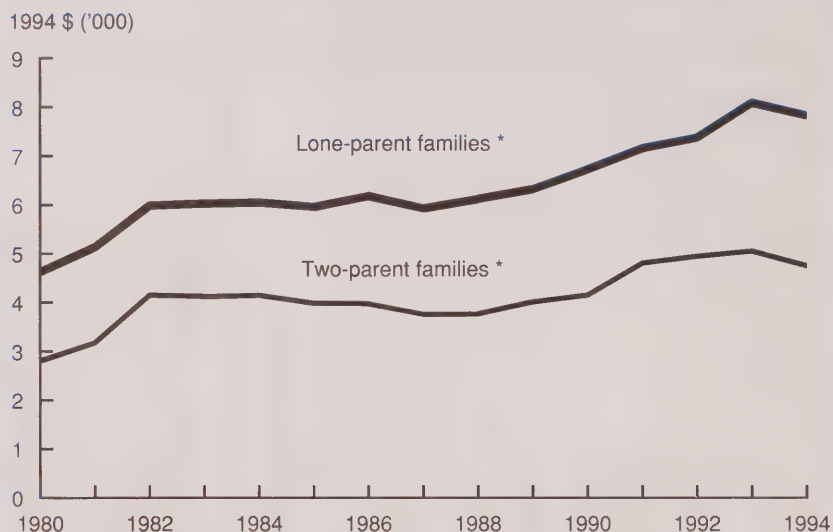
Transfers rise during recessions

The principal purpose of transfer payments is to help support families in times of need, and indeed, payments to all families with children rose steeply during the two recessions of the last 15 years (Chart A). During the 1981-82 recession, transfer payments to two-parent families jumped almost 31% in one year, from an average of \$3,200 to

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Chart A

Average transfer income rose during both recessions.



Source: Survey of Consumer Finances

* Non-elderly families with at least one single child under 18.

\$4,200; in lone-parent families, they rose 17%, from \$5,100 to \$6,000.³ Having risen, the average transfer payment did not drop until 1985, well into the recovery. And even during the expansion of the late 1980s, transfers were at least 30% more than they had been in 1980, hovering around \$3,800 for two-parent and \$6,000 for lone-parent families. There are a number of reasons why transfers have remained high, among them the continued stagnation of market income among young families (Picot and Myles, 1995); displaced workers' difficulty in finding new and/or steady employment; the continued high rate of unemployment; and the changing demographic composition⁴ of low income families with children.

Whatever the cause, or causes, once increased, transfer payments remained higher than pre-recession levels, not only as an absolute dollar amount, but also as a proportion of total family income. In 1980, transfers accounted for 5% of two-parent and 18% of lone-parent family income. Three years later, immediately after a severe recession, they accounted for 7% and 25%, respectively. Throughout the growth period of the business cycle (1984 to 1989), government income made up at least 6% (two-parent families) and 22% (lone-parent families) of family income (Appendix A).

With the onset of the 1990-92 recession, transfer payments again rose rapidly. From 1990 to 1993, average transfers to two-parent

Data sources, definitions and limitations

Data in this study are from the Survey of Consumer Finances (SCF) and the Labour Force Survey (LFS). The SCF, conducted each year in April or May as a supplement to the monthly LFS, collects information about amounts and sources of income received in the previous calendar year, and about work intensity (number of weeks worked in the year and whether employment was mostly full- or part-time). The LFS collects information about the family, employment status, industry and occupation, education, and so on.

Family: in this article refers to an economic family, meaning two or more persons living in the same dwelling who are related by blood, marriage (includes common law) or adoption.

Non-elderly family: family in which the reference person is under age 65. Most are two- or lone-parent families with at least one single child under 18 (also referred to as dependent child), but this category also includes married couples only, married couples with other relatives (most often children aged 18 and over) and other family groupings (for example, siblings living together).

Two-parent family: husband-wife with at least one single child under 18

Lone-parent family: a lone parent with at least one single child under 18

Market income: income from market sources, including earnings (employment income), investment income, retirement pensions, annuities and other money income.

Government transfer payments: includes Family Allowance,¹ Old Age Security pension and Guaranteed Income Supplement, Canada and Quebec Pension Plan benefit,² Unemployment Insurance, Child Tax Credit, refundable provincial tax credit, Goods and Services Tax credit, social assistance and other government transfer payments.

Family income: the sum of market income and government transfer payments received by all family members combined. Amounts are expressed in 1994 dollars, rounded to the nearest 100.

Low income cut-off (LICO): Statistics Canada's low income indicator, which is based on the proportion of family income usually spent on necessities, that is, food, shelter and clothing. This study uses the LICOs based on the 1992 Family Expenditure Survey of spending patterns, which defines low income individuals or families as those spending more than 54.7% of their income on necessities. The actual dollar amount of

the LICO differs according to family size and location; for example, a family of three in an urban area with a population of 500,000 or more is considered low income if its total income is less than \$25,668, while a family of four in a rural area is low income if it receives less than \$21,472. (For details, see Statistics Canada, 1995).

Low income family: family whose income falls below the low income cut-off for that family size and location.

Average low income gap: the difference between a low income family's income and the LICO for that family type, averaged over all families falling below their respective LICO.

Limitations

The low income cut-offs used here have not been adjusted to reflect the fact that people's spending patterns would be different if government transfer payments did not exist. LICOs adjusted for the absence of government transfers might be higher or lower than the current ones. Without knowing how people's behaviour would change in the absence of transfers, it is not possible to say whether the findings in this study under- or overestimate the number of families that would fall below the LICO without transfer payments.

families jumped 22%, peaking at \$5,000; those to lone-parent families rose 20%, to reach a high of \$8,100. By 1994, general economic conditions were improving: market incomes increased moderately, by 3% for two-parent and 6% for lone-parent families. In response, the average value of transfers subsided from the peaks recorded in 1993, to about \$4,700 for two-parent and \$7,800 for lone-parent families.

Transfers mean fewer low income families

For most families, transfer payments are a small, though no doubt

welcome, supplement to their market incomes; for others, they are a necessary source of income. The question then becomes, "how necessary?" Over the period 1980 to 1994, 11% of two-parent families, on average, had incomes below the LICO; without transfers, the proportion would have been 17%. In other words, transfer payments cut by one-third the number of two-parent low income families. The effect on lone-parent families was not nearly so dramatic: an average 54% had incomes below the LICO, while 62% would have been in this position without government transfers. In this case, transfer payments

cut the number of lone-parent low income families by over one-tenth (Chart B).

The considerable (and growing) support provided by transfers was necessary for many low income families because their average income from employment and other market activities was virtually stagnant throughout much of the period.⁵ During the expansion following the 1981-82 recession, market incomes in two-parent low income families waxed and waned, falling more than 2% between 1984 and 1989 (to \$11,900). Meanwhile, transfer payments rose 9%, and by

1989 accounted for 38% of these families' total income, up from 35% in 1984 (Chart C).

Lone-parent families with low incomes reported the same experience. They recorded a 3% decline in their average market income from 1984 to 1989 (to \$4,900). Not surprisingly, transfer payments increased by about 12%; in 1989, the peak of the expansion, 65% of the income in lone-parent low income families came from transfer payments, up from 61% in 1984 (Chart D).

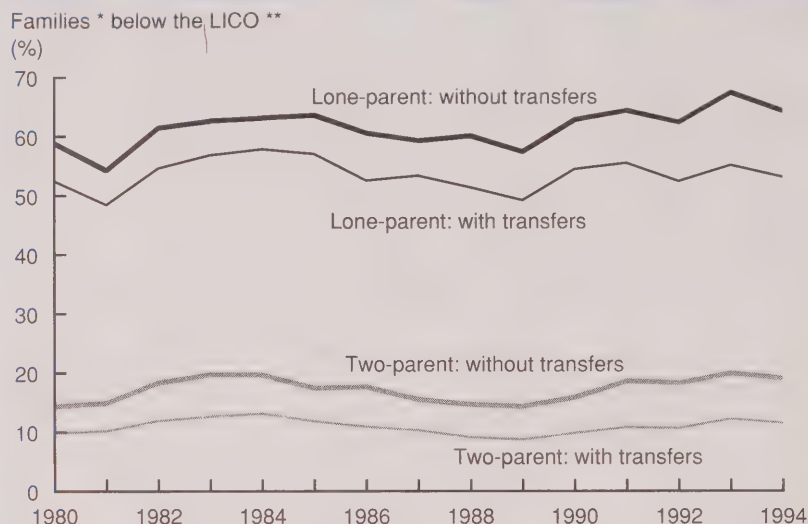
Already heavily dependent on transfers, low income families were badly hurt by the 1990-92 recession. Between 1990 and 1993, the average market income of two-parent families with incomes below the LICOs dropped 18% (to \$10,300) while transfers increased 39% (to \$9,400). Market incomes of lone-parent low income families tumbled 20% in the first two years of the recession (to \$3,800 in 1992), and then began to recover; in the meantime, the average value of transfer payments to these families climbed 15% to reach \$10,300 by 1993. In 1994, as the recovery took hold, the market income of two-parent low income families improved slightly, while transfers correspondingly declined. Lone-parent low income families had the opposite experience: market income dropped 16% while transfers rose only 1% (Appendix B).

Average low income gap almost constant for 15 years

To what extent do transfer payments help families with low incomes? As already shown, transfer payments successfully lifted a large proportion of families above the LICOs. However, others remained substantially below. In 1994, the average family income (including transfers) of two-parent low income families was \$19,500, almost \$9,000 below the LICOs.

Chart B

Government transfers reduce the incidence of low income families.



Source: Survey of Consumer Finances

* Non-elderly families with at least one single child under 18.

** Low income cut-off.

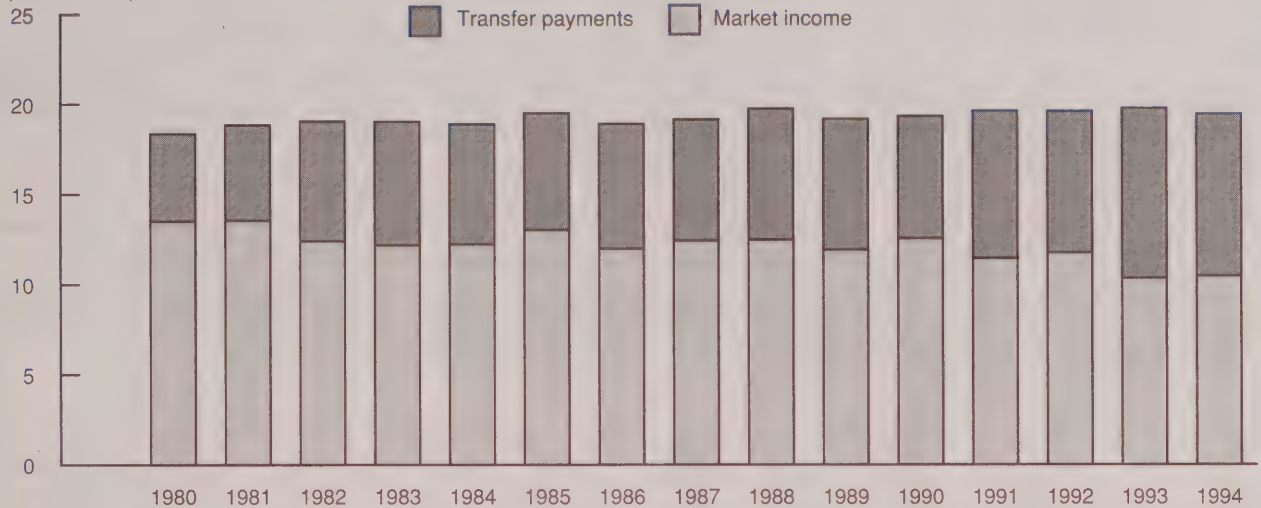
This "low income gap" was somewhat higher than it had generally been in most of the previous years, when it ranged between \$7,800 and \$8,700. In contrast, the gap for lone-parent low income families was somewhat lower than usual in 1994. Total family income averaged \$14,100 that year, leaving a gap of \$8,200; for much of the previous 15 years, it fluctuated between \$7,900 and \$9,700.

Summary

The dollar value of transfer payments to all families with children under the age of 18 has risen fairly steadily in the past 15 years. From 1980 to 1994, transfer payments to both two- and lone-parent families increased by 69%, or by \$1,900 for two-parent and \$3,200 for lone-parent families. By 1994, transfers formed 8% of total family income for two-parent families, up from 5% in 1980, and reached 31% for lone-parent families, up from 18%.

Recent cutbacks in government programs such as social assistance and Unemployment Insurance (many implemented in 1995) are not reflected in the data quoted here. However, the evidence suggests that transfer payments have become increasingly important to low income families. Throughout the study period, about one-third of two-parent and one-tenth of lone-parent families with low market incomes have needed this assistance to rise above the LICO threshold. For families that have remained below the LICO, transfers have been essential, accounting for at least 33% of two-parent and over 61% of lone-parent families' income since 1982. Yet despite the steady increase in the average value of these payments to low income families, the size of the average low income gap has remained comparatively constant. □

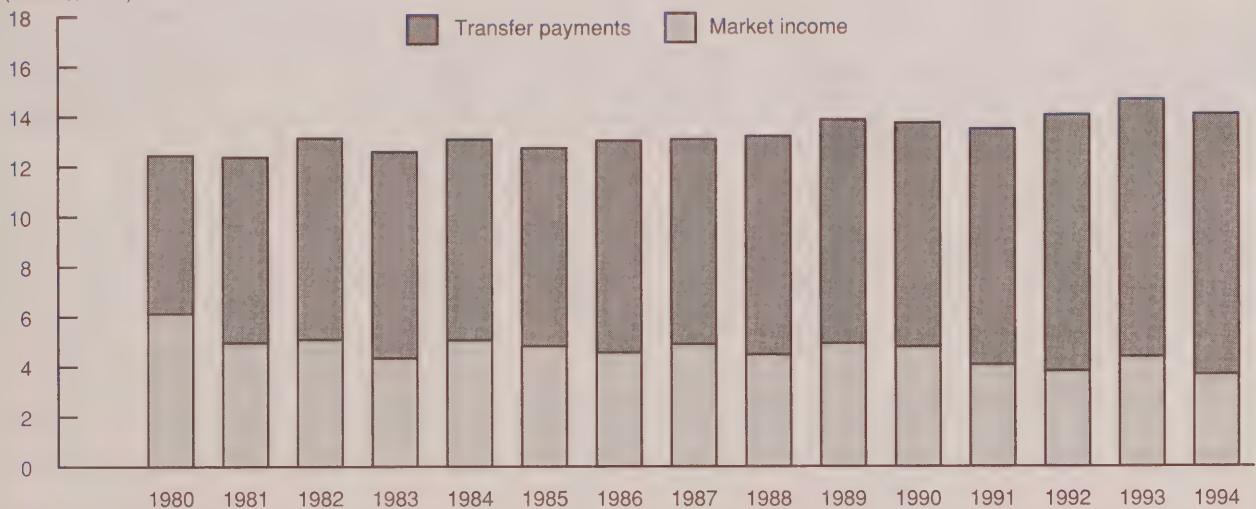
Chart C

Two-parent low income families * rely increasingly on transfer payments.Average family income
(1994 \$, '000)

Source: Survey of Consumer Finances

* Non-elderly families with at least one single child under 18.

Chart D

Transfer payments are the major source of income for lone-parent low income families *.Average family income
(1994 \$, '000)

Source: Survey of Consumer Finances

* Non-elderly families with at least one single child under 18.

■ Notes

1 Some transfers have been amalgamated with others and their names revised since the beginning of the study period. For example, Family Allowance, Child Tax Credit and the tax exemption for dependent children are now collectively known as Child Tax Benefits.

2 Strictly speaking, Canada and Quebec Pension Plan (C/QPP) benefits should not be called transfer payments because they are contributory plans. Similarly, Unemployment Insurance (UI) benefits can be paid only if the recipient has contributed to the plan. However, the Survey of Consumer Finances classifies these benefits as transfer payments because they originate from government. In this study of non-elderly families with children under 18, C/QPP benefits should be virtually negligible unless a family member

is receiving a disability pension, which has no age restriction.

3 Lone-parent families – about 85% of which are headed by women – are more dependent on transfer payments than are two-parent families because they receive much less from employment and other market activities. From 1980 to 1994, the average market income of lone-parent families never rose above \$22,100 (1981), while that of two-parent families never fell below \$52,000 (1983).

4 In an increasing proportion of low income families – from 20% in 1980 to 44% in 1994 – the reference person for the family was under 24 years old, an age group for which the unemployment rate is particularly high.

5 In 1993, only 65% of low income families had at least one family member employed at some time in the year; over half (53%) of

that employment was part-time. Consequently, low income families had less than half the volume of work obtained by families with incomes above the LICOs: the equivalent of 34 weeks of full-time work, compared with 77 weeks (Crompton, 1995).

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Appendix A

Selected income data for non-elderly families

	1980	1981	1982	1983	1984	1985	1986	1987
	\$							
Non-elderly families *								
Average market income	53,400	52,500	49,900	49,500	49,100	50,700	51,900	53,000
Average transfer payment	2,700	3,000	3,900	3,900	4,000	3,900	3,900	3,700
Average total income	56,200	55,500	53,800	53,500	53,100	54,600	55,800	56,700
Transfers as % of total income	4.9	5.4	7.3	7.4	7.5	7.1	7.0	6.6
Two-parent families								
Average market income	55,700	54,500	52,200	52,000	52,300	54,100	55,300	56,900
Average transfer payment	2,800	3,200	4,200	4,100	4,100	4,000	4,000	3,800
Average total income	58,500	57,700	56,400	56,200	56,400	58,100	59,300	60,600
Transfers as % of total income	4.8	5.5	7.4	7.3	7.3	6.9	6.7	6.2
Lone-parent families								
Average market income	21,400	22,100	18,900	17,900	19,000	18,800	19,000	20,400
Average transfer payment	4,600	5,100	6,000	6,000	6,000	6,000	6,200	5,900
Average total income	26,000	27,200	24,900	23,900	25,000	24,800	25,200	26,300
Transfers as % of total income	17.8	18.8	24.0	25.2	24.2	24.0	24.5	22.5
	1988	1989	1990	1991	1992	1993	1994	
	\$							
Non-elderly families *								
Average market income	54,300	55,200	54,000	52,100	51,800	50,200	51,800	
Average transfer payment	3,700	3,900	4,200	4,800	5,000	5,100	4,900	
Average total income	58,000	59,100	58,200	56,900	56,800	55,400	56,600	
Transfers as % of total income	6.4	6.7	7.2	8.4	8.8	9.3	8.6	
Two-parent families								
Average market income	58,000	59,600	58,200	56,000	56,300	54,800	56,400	
Average transfer payment	3,800	4,000	4,100	4,800	4,900	5,000	4,700	
Average total income	61,800	63,600	62,300	60,800	61,300	59,800	61,100	
Transfers as % of total income	6.1	6.3	6.7	7.9	8.1	8.4	7.8	
Lone-parent families								
Average market income	19,900	21,800	19,500	17,700	18,800	16,700	17,800	
Average transfer payment	6,100	6,300	6,700	7,100	7,400	8,100	7,800	
Average total income	26,000	28,100	26,200	24,900	26,200	24,800	25,600	
Transfers as % of total income	23.5	22.4	25.7	28.7	28.1	32.5	30.5	

Source: Survey of Consumer Finances

Note: Amounts are in 1994 dollars rounded to the nearest 100.

* Includes two-parent and lone-parent families with single children under 18, married couples only, married couples with other relatives, and all other families with a reference person under age 65.

Appendix B**Selected income data for non-elderly families below the low income cut-offs**

	1980	1981	1982	1983	1984	1985	1986	1987
	\$							
Non-elderly families *								
Average market income	9,600	9,800	8,900	8,800	8,700	9,100	8,400	8,800
Average transfer payment	5,400	5,700	6,800	6,800	6,700	6,600	7,100	6,800
Average total income	15,000	15,500	15,700	15,500	15,500	15,700	15,500	15,600
Average low income gap	8,300	8,400	8,100	8,500	8,400	8,200	8,000	8,100
Two-parent families								
Average market income	13,500	13,600	12,400	12,200	12,300	13,000	12,000	12,400
Average transfer payment	4,900	5,300	6,600	6,900	6,700	6,500	6,900	6,700
Average total income	18,400	18,900	19,100	19,000	18,900	19,500	18,900	19,200
Average low income gap	8,400	8,600	8,200	8,700	8,700	8,100	8,400	8,600
Lone-parent families								
Average market income	6,100	5,000	5,100	4,300	5,100	4,800	4,600	4,900
Average transfer payment	6,300	7,400	8,100	8,300	8,000	7,900	8,500	8,200
Average total income	12,400	12,400	13,100	12,600	13,100	12,700	13,000	13,100
Average low income gap	9,400	9,700	9,100	9,600	9,400	9,600	9,000	8,900
	1988	1989	1990	1991	1992	1993	1994	
	\$							
Non-elderly families *								
Average market income	8,100	8,100	8,200	7,500	7,300	7,200	7,100	
Average transfer payment	7,500	7,500	7,400	8,200	8,500	8,900	8,800	
Average total income	15,600	15,600	15,600	15,600	15,800	16,100	15,900	
Average low income gap	7,700	7,700	8,000	8,100	7,900	7,700	8,000	
Two-parent families								
Average market income	12,500	11,900	12,600	11,500	11,800	10,300	10,500	
Average transfer payment	7,300	7,300	6,800	8,200	7,800	9,400	9,000	
Average total income	19,800	19,200	19,300	19,600	19,600	19,800	19,500	
Average low income gap	7,800	8,200	8,600	8,400	8,500	8,400	8,900	
Lone-parent families								
Average market income	4,500	4,900	4,800	4,100	3,800	4,400	3,700	
Average transfer payment	8,800	9,000	9,000	9,400	10,300	10,300	10,400	
Average total income	13,200	13,900	13,800	13,500	14,100	14,700	14,100	
Average low income gap	8,700	8,000	8,400	8,900	8,300	7,900	8,200	

Source: Survey of Consumer Finances

Note: Amounts are in 1994 dollars, rounded to the nearest 100.

* Includes two-parent and lone-parent families with single children under 18, married couples only, married couples with other relatives, and all other families with a reference person under age 65.

What's new?

■ JUST RELEASED

■ *Survey of Consumer Finances releases two income studies*

Income After Tax, Distributions by Size in Canada

How do transfer payments and taxes affect family income? Over time, how has the income tax and social transfer payment system affected the income gap between lower and upper income families? *Income After Tax, Distributions by Size in Canada, 1994* (Catalogue no. 13-210-XPB) presents information that addresses these and other questions. It provides income distributions as well as average market income, transfer payments, income tax and income after tax, historically, for families and unattached individuals. Data analysis, definitions, data quality and a bibliography are included.

Characteristics of Dual-Earner Families

Is the growth in the number of dual-earner families coming to an end? How do families in which both spouses have earnings compare, in terms of income and earnings, with families in which only one spouse has earnings? In what ways do single- and dual-earner families differ? *Characteristics of Dual-Earner Families, 1994* (Catalogue no. 13-215-XPB) explores various characteristics of dual-earner families and compares them with other types of husband-wife families.

Data for both publications are derived from the Survey of Consumer Finances, an annual supplement to the Labour Force Survey. For further information, contact Kevin Bishop, (613) 951-2211 or Michel Dumoulin, (613) 951-4635. □

■ *Homeowner repair and renovation expenditure*

The 1995 Homeowner Repair and Renovation Survey (HRRS), a supplement to the Labour Force Survey, collected data from a sample of about 19,800 homeowners. The survey was limited to owner-occupied dwellings, which represent approximately 70% of the total renovation market. Its scope included the Home

Energy Retrofit Survey (HERS), which measured the energy retrofit activities in Canadian homes. The following points were noted:

- In total, homeowners spent 6% less on improving and maintaining their homes in 1995, spending slightly less on do-it-yourself projects and far less on contractors than they had in 1994.
- The value of materials that homeowners purchased to do their own repairs and renovations fell 1.4% to \$4.8 billion. This decline came on the heels of a substantial 16.6% increase the year before.
- On average, homeowners spent \$1,660, down 7.7% from 1994. This was far below the peak of 1989, when homeowners allocated \$2,197 on average to maintain and improve their homes.

For further information on this survey, contact Income, Expenditure and Housing Data Dissemination Unit, Family Expenditure Surveys Section, Household Surveys Division, (613) 951-4633; fax (613) 951-3012. Internet: expenditures@statcan.ca. □

■ *Analytical Studies Branch research paper series*

Productivity Growth, Plant Turnover and Restructuring in the Canadian Manufacturing Sector

J.R. Baldwin

Research Paper Series no. 87

This paper examines the extent to which productivity was enhanced by firm turnover in the 1970s and 1980s. Firm turnover occurs when firms gain and lose market share as part of the competitive struggle. Less productive firms lose market share and employment; more productive firms gain. This kind of competition contributed much to productivity growth in the manufacturing sector in the 1970s. The author finds that normal growth and decline did not change appreciably in the 1980s, nor did their effects on productivity.

The Evolution of Payroll Taxes in Canada: 1961-1993

Z. Lin, G. Picot and C. Beach

Research Paper Series no. 90

This paper outlines the structure of payroll taxes and documents the level, growth and role of each component over the last three decades for Canada and the provinces.

Payroll taxes in Canada include four major components: Unemployment Insurance (UI) premiums; Canada and Quebec Pension Plan (C/QPP) contributions; Workers' Compensation (WC) premiums and the provincial health/postsecondary education (H/E) tax levied by Quebec, Manitoba, Ontario and Newfoundland.

In a period of high unemployment, it is important to know whether and to what extent increases in payroll taxes cost jobs. Furthermore, since UI premiums and C/QPP contributions are not fully proportional to wages and salaries, but rather start at a certain minimum and cease at a certain maximum, they are a form of quasi-fixed labour costs that may provide employers with financial incentives to control employees' weekly hours of work (that is, increasing hours for "core" employees and decreasing hours for others) to minimize premium contributions. The study makes the following observations:

- Payroll taxes have increased substantially over the last three decades in Canada as a whole and in every province, and represent an increasingly important source of government revenue.
- Expansion of the UI component in recent years has been the largest contributor to the rise in payroll taxes across the country.
- Despite significant growth in recent years, payroll taxes are still much lower in Canada than in most other western industrialized countries.

Job Creation by Company Size Class: Concentration and Persistence of Job Gains and Losses in Canadian Companies

G. Picot and R. Dupuy
Research Paper Series no. 93

This paper addresses the effect of measurement issues on the question of job creation by firm size. It also considers various explanations for small firms' ability to create jobs, such as the availability of flexible specialized technologies that allow such firms to respond to market needs quickly, or the labour cost advantages associated with lower wages. The authors note that the growth rate of net employment decreases as the size of firm increases. Among small firms, 5% of the companies accounted for 43% of the job gains over a three-year period; another 3% accounted for 34% of the job losses.

To order studies in the Research Paper Series, contact your nearest Statistics Canada Regional Reference Centre, or write to Publications Review Committee, Analytical Studies Branch, Statistics Canada, 24th floor, R.H. Coats Building, Ottawa, Ontario K1A 0T6. Or phone (613) 951-1804; fax (613) 951-5403. □

■ WHAT'S NEW WITH SLID?

■ *Microdata now available*

The Survey of Labour and Income Dynamics has recently made available its first public use microdata file. The *Survey of Labour and Income Dynamics Public Use Microdata* (Catalogue no. 75M0001XCB) is a collection of files on CD-ROM intended for hands-on analysis. The two primary files are the Person data file, containing information on every sample member aged 16 and over, and the Person-Job data file, containing similar variables, but with a separate record for each job.

Background information, including marital history, ethnocultural traits, fertility, schooling and work history, was collected in January 1993. A year later, updated labour market activities and family changes were noted for the same people. Income information was added in May 1994. All information is part of the 1993 reference year (Wave 1) data.

The *Microdata User's Guide* (Catalogue no. 75M0001GPE) is a comprehensive description of the survey's objectives, design, methods and content. One copy is included with the public use microdata files, but the guide can also be purchased separately, which would be useful for anyone wishing to order custom retrievals. It provides a thematic description of the SLID content, a useful starting point to the SLID data dictionary and record layouts (also contained in the guide).

The *SLID Electronic Data Dictionary*, included in the contents of the CD-ROM, contains a list of variables and code sets. It can be ordered separately on diskette (at no charge).

■ *SLID research paper series*

The SLID Research Paper Series has documented detailed studies and important survey decisions since 1992. Among the 1995 research papers are the following:

Family and Work: What Will the Survey of Labour and Income Dynamics Have to Offer?

Ruth Dibbs, Éline Fournier and Maryanne Webber
SLID Research Paper Series no. 95-13

This paper was presented at the Motherhood, Family and Work Workshop, Canadian Sociology and Anthropology Association Annual Meeting in Montréal (held in June 1995). It describes the empirical data that will be available from SLID to help explain the choices women make in balancing home, family and work.

SLID has collected background information on factors that have a continuing influence on labour market activity and personal and family well-being, for example, work experience, educational attainment, marital history and children born and raised. Data for the same people will be updated annually.

The Wage Gap Between Men and Women: An Update
David Coish and Alison Hale
SLID Research Paper Series no. 95-14

Recent studies show that the wage gap between men and women is shrinking. In the case of recent university graduates it has closed completely. But for the workforce as a whole, the gap remains sizeable – even after taking into account such factors as education level, field of specialization, years of work experience and hours worked.

This research paper follows up on the initial article in *Dynamics of Labour and Income: 1994 Report*. The analysis remains the same, but also includes detailed variable groupings and regression and decomposition results, which were not originally provided. This supporting documentation is contained in the appendices.

To order or for further information on custom retrievals, microdata files and related products, please call the survey dissemination unit: (613) 951-4633 or (613) 951-5266; fax (613) 951-3012. Internet: dynamics@statcan.ca. □

■ SEPH redesign

The Survey of Employment, Payrolls and Hours (SEPH) has recently expanded its use of administrative data. It had previously used administrative data on employment and payrolls for small businesses only, which represented approximately 30% of total employment.

With this redesign, SEPH will use administrative data covering non-complex medium and large businesses. The administrative data account for approximately 65% of total employment and survey data contribute the remaining 35%. Complex businesses, which operate in more than one province or area of industrial activity, will be incorporated at a later date.

With this new source, data coverage has been improved. Previously released data have also been revised, making available consistent time series back to January 1983.

For further information on this survey, contact SEPH at (613) 951-4090; fax (613) 951-4087. Internet: labour@statcan.ca. □

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Key labour and income facts

The labour and income indicators are drawn from numerous sources, including published and unpublished annual data. These indicators, covering labour market, earnings, income and other household topics (for Canada, the provinces and territories), are kept in a database that is updated quarterly. For each indicator, a time series of 10 years (or more) is maintained.

The set of indicators can be obtained, on paper or diskette, at a cost of \$50. A document explaining the indicators is also available. Work is in progress to make the indicator data available on the Internet. For further information, contact Joanne Bourdeau at (613) 951-4722; fax (613) 951-4179.

Sources

Currently, the indicators are derived from the following sources:

Labour Force Survey

Frequency: Monthly

Contact: Doug Drew (613) 951-4720

Survey of Consumer Finances

Frequency: Annual

Contact: Kevin Bishop (613) 951-2211

Absence from Work Survey

Frequency: Annual

Contact: Nancy Brooks (613) 951-4589

National Work Injuries Statistics Program

Frequency: Annual

Contact: Horst Stiebert (613) 951-4044

Help-wanted Index

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Unemployment Insurance Statistics Program

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Survey of Employment, Payrolls and Hours

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Major wage settlements, Bureau of Labour Information (Human Resources Development Canada)

Frequency: Quarterly

Information: (819) 997-3117

Labour income

Frequency: Quarterly

Contact: Ed Bunko (613) 951-4048

Household Facilities and Equipment Survey

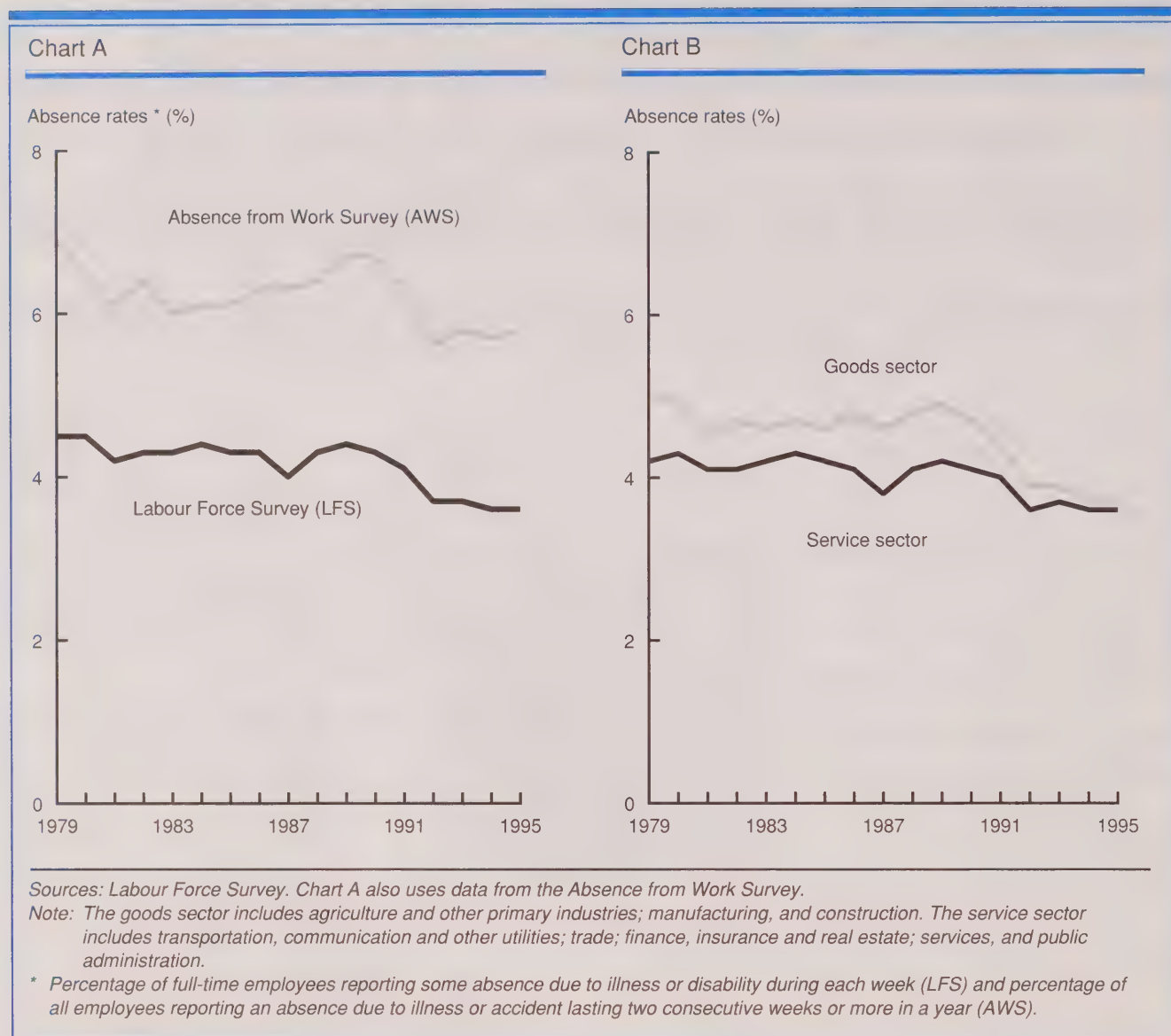
Frequency: Annual

Contact: Penny Barclay (613) 951-4634

Small area and administrative data

Frequency: Annual

Customer Services: (613) 951-9720



Absence rates down for illness, disability or accident

In 1995, workers were less likely to miss work on account of illness or disability than they were 16 years earlier. According to the Labour Force Survey (LFS), an estimated 3.6% of all full-time paid employees were absent for all or part of each week because of illness or disability. In 1979, the rate had been 4.5% (Chart A). Similarly, workdays missed per full-time employee fell a half day over the period, from an average of 6.4 days in 1979 to 5.9 in 1995.

The above finding is in line with evidence from the Absence from Work Survey (AWS), conducted each February as a supplement to the LFS. This supplement collects information on work absences due to illness or accident and lasting two or more consecutive weeks in the previous year. The AWS found that in 1995 approximately 5.8% of all employees reported at least one such absence, considerably lower than 6.9% in 1979 (see Noreau, in this issue) (Chart A).

Chart C

Employment index (1979=100)

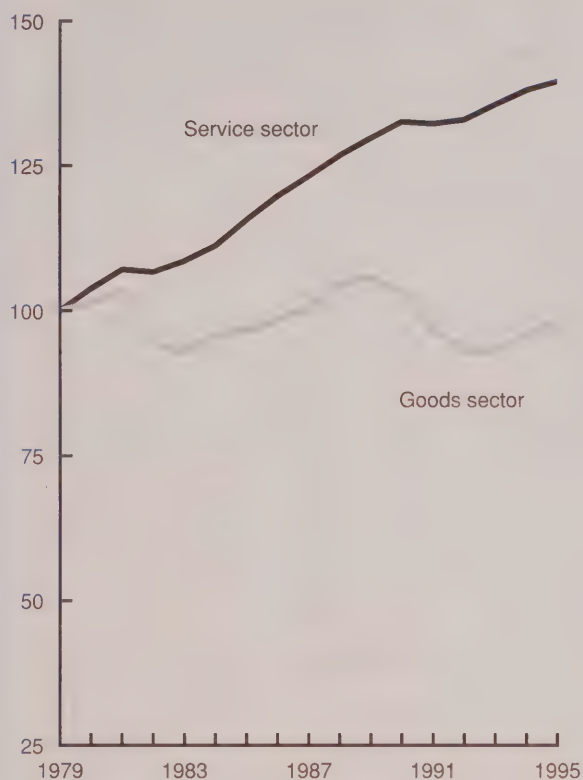
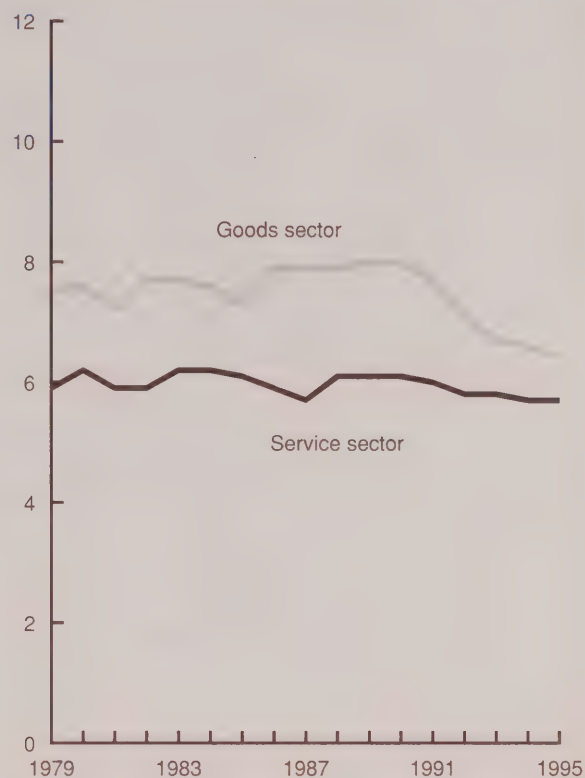


Chart D

Days lost per full-time worker

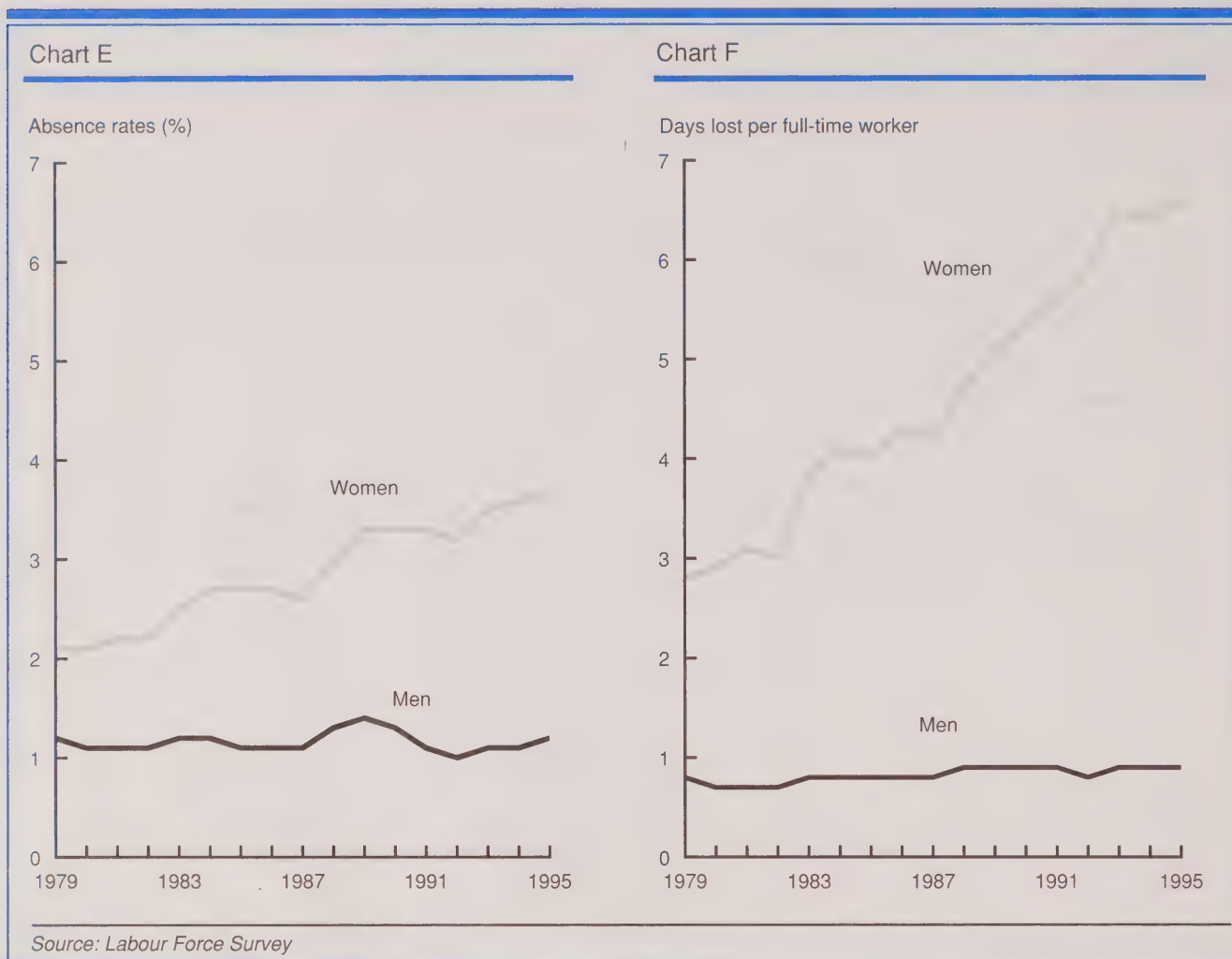


Source: Labour Force Survey

Note: The goods sector includes agriculture and other primary industries; manufacturing, and construction. The service sector includes transportation, communication and other utilities; trade; finance, insurance and real estate; services, and public administration.

There are several reasons for the decline. The shift in employment away from the more hazardous and physically demanding goods-producing industries accounts for much of the change (Chart C). But the rates and days missed have fallen in both sectors (Charts B and D). Other possible factors include stepped-up corporate programs designed to improve

health awareness (such as programs to reduce drug and alcohol abuse) and to provide a smoke-free workplace, as well as government regulations relating to working conditions, and a growing general awareness of the importance of a lifestyle promoting sound health.



Absences due to personal or family responsibilities rising among women

The proportion of full-time male employees reporting a work absence each week on account of personal or family demands has remained fairly steady, around 1% from 1979 to 1995 (Chart E). The average number of workdays missed by these workers has remained just under one day each year throughout the period (Chart F).

The picture for women is quite different. The proportion reporting an absence each week for personal or family responsibilities rose from 2.1% in 1979 to 3.6% in 1995, and workdays missed per employee per year more than doubled, from 2.8 to 6.6 days.

This increase can be traced largely to the influx into the workforce of women in families with pre-school children. During the period under study, their numbers rose by 67%, more than twice the 26% increase for all workers. If they worked full time, women in these families missed an average 33.5 days in 1995, almost triple the 12.9 days in 1979 (Chart G). This contrasted sharply with the experience of their counterparts in families without pre-school children, or that of men in families with or without pre-school children; workdays missed by full-time workers in these groups because of personal or family obligations remained around one day until the mid-1980s and has since hovered slightly above (Chart G inset).

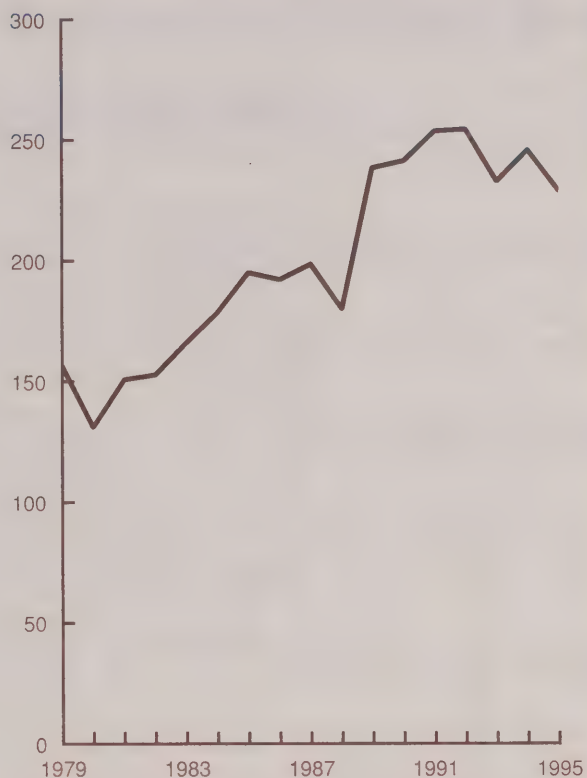
Chart G

Days lost per full-time worker



Chart H

Pregnancy absences ('000)



Sources: Labour Force Survey and Absence from Work Survey (Chart H)

The inclusion of maternity/pregnancy absences in the LFS personal or family responsibility category has tended to exaggerate work time lost by women, especially those with very young pre-school children. This growing trend is also in line with that observed by the Absence from Work Survey (Chart H), which shows an increase in pregnancy absences from just over 150,000 women in 1979 to close to one-quarter of a million in 1995. The inclusion of maternity/pregnancy absences has probably had only a slight influence on the figure for all working women, however (Akyeampong, 1995).

Charts and text for this issue's "Key labour and income facts" were prepared by Ernest B. Akyeampong, of the Labour and Household Surveys Analysis Division. He can be reached at (613) 951-4624.

■ Reference

Akyeampong, E.B. "Missing work." *Perspectives on Labour and Income* (Statistics Canada, Catalogue no. 75-001-XPE) 7, no. 1 (Spring 1995): 12-16.

In the works

Here are some of the topics to be featured in upcoming issues

■ The employment/population ratio

This article provides an explanation of this important but little-known labour market indicator and discusses some of its uses. Employment/population trends at the national level are analyzed for the 1946-95 period. Some provincial and international comparisons are also included.

■ Diversity of managers

A look at the characteristics of the jobs and workers in the “managerial, administrative and related occupations” category. This study reveals the wide variations within what is often thought of as a homogeneous group.

■ RRSP rollovers

Certain types of income are eligible to be rolled into an RRSP. This note explains how rollovers differ from standard RRSP contributions. It considers who is using this option, and how much income was rolled over from 1990 to 1994. The 1989, 1990 and 1995 legislative changes and their effects are also discussed.

■ RRSP withdrawals

Given the tremendous growth in contributions in recent years, it is easy to forget that many people also withdraw savings from RRSPs. This article looks at RRSP withdrawals over the 1990-94 period and at those who made them. Withdrawals made under the Home Buyers Plan (introduced in 1992) are also studied.

■ Post-divorce income

An in-depth examination of the financial implications of divorce or separation. This study profiles those who became divorced or separated between 1986 and 1992 and analyzes the changes in their after-tax income in the year immediately after the split and several years later. The effect of alimony on income after separation is also considered.

■ Index 1989-1996

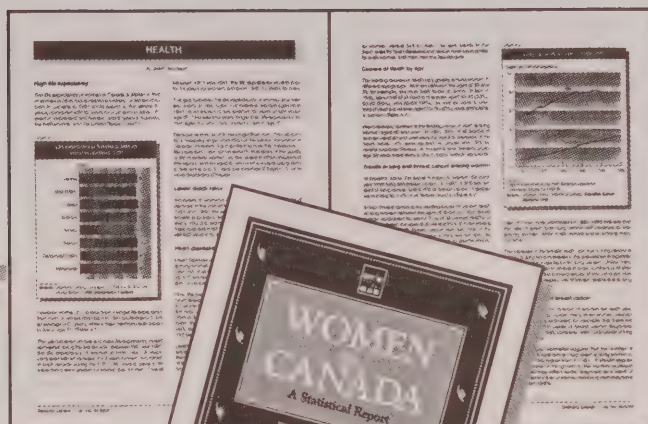
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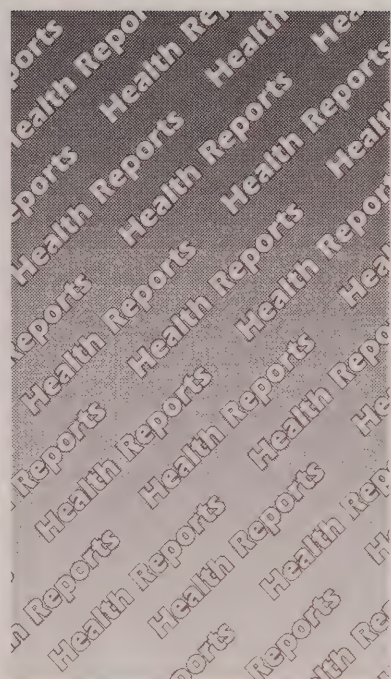
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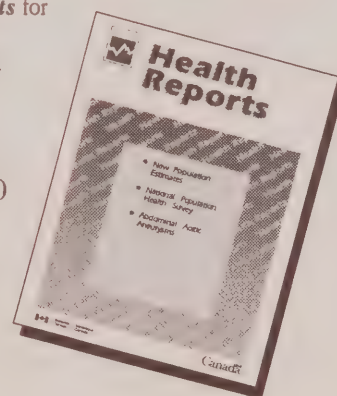
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■ Articles

9 Another measure of employment

Ernest B. Akyeampong

The employment/population ratio is a good barometer of the state of the economy and an important though little-used labour market indicator. This article takes a look at the ratio's strengths and limitations, as well as its variation since 1946. Provincial and international comparisons are included.

16 RRSP withdrawals revisited

Hubert Frenken

Despite improved economic conditions in recent years, Canadians have continued to cash in their RRSPs. This article looks at RRSP withdrawals during the 1990s, including those made through the Home Buyers' Plan. Who made these withdrawals, and for what reasons, and how will such behaviour affect immediate tax obligations and future retirement savings?

20 RRSP rollovers

Hubert Frenken

From 1990 to 1994, rollovers of retiring allowances and pension benefits represented about 20% of all RRSP deposits. This article shows how great these rollover contributions were, who benefited and who will be most affected by recent legislative changes.

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24 The diversity of managers

Katherine Marshall

Do all managers command high salaries and work long hours? According to Statistics Canada's Standard Occupational Classifications of 1980 and 1991, which this article describes, wide variations exist within "managerial" occupations.

31 Changes in job tenure

Andrew Heisz

While average job tenure has changed little since 1981, there has been an increased polarization between short- and long-term jobs throughout the economy. This study estimates the average length of a new job between 1981 and 1994, as well as the probability that new jobs of a certain length will continue. Analysis is by sex, age, region, educational attainment and industry. (Adapted from an article in *Canadian Economic Observer*, January 1996.)

For the record:

"A job to die for," published in the Summer 1996 issue, was based on "reported" rather than "accepted" work fatality cases as the article stated. Nationally, over 90% of reported cases are accepted for compensation by Workers' Compensation Boards and Commissions. The remaining cases may not be compensated for a number of reasons, for example, the job is not covered by the legislation, or the illness is not covered or deemed work-related.

"Transfer payments to families with children," published in the Autumn 1996 issue, contained an inaccurate endnote. Endnote 4 should have read, "Among families with the reference person under 25 years old – an age group for which the unemployment rate is particularly high – the incidence of low income rose from 20% in 1980 to 44% in 1994."

Symbols

The following standard symbols are used in Statistics Canada publications:

- .. figures not available
- ... figures not appropriate or not applicable
- nil or zero
- amount too small to be expressed
- p preliminary figures
- r revised figures
- x confidential to meet secrecy requirements of the Statistics Act

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■ As I have written in this space before, *Perspectives* is an interesting hybrid of scholarly journal and popular magazine, with a few characteristics unique to the analytic products of statistical agencies thrown in. *Perspectives* is a distinct product designed to serve a market need, not just a vehicle for disseminating labour and income analysis done at Statistics Canada. Each proposal for an article is evaluated for its relevance to the *Perspectives* readership. On more than a few occasions we have considered and rejected proposals that had a great deal of intrinsic merit and would be of interest to a fair number of people, but didn't address the needs of our readers. For each proposal we ask ourselves three questions: who among *Perspectives* readers would be interested, why would they be interested and what will they do with the information once they get it?

It is not always possible to obtain clear and concrete answers to all three questions, but the process of posing them and trying to answer them tends to result in more focused articles.

We have found that our most effective articles are those with a sharp focus – their authors have set a precise task for themselves and have pursued it with determination. (Confining oneself to a limited set of objectives is a challenge for anyone who thrives on analyzing data. One invariably finds magnitudes and relationships that beg to be explored further, even if they don't serve the objectives at hand. So one response is to set them aside as the starting point for some future article.)

One tactic we use to bring a manuscript proposal into focus is to assign it a generic objective from a constantly evolving list developed over the years. Making this selection helps authors make the countless "keep/discard" decisions that are part of doing analysis. In addition, it can help reviewers of draft articles confine their observations to those consistent with each author's intent.

Several of the articles in this issue demonstrate the use of generic objectives. For example, that of "The diversity of managers" is what we refer to as "myth busting." The generic objective is to "bust" the widely held but erroneous perception that everyone in this occupational category is highly paid and highly educated, and works very long hours. The article

accomplishes this by providing data on the category's actual, and quite different, composition. Previous "myth busting" articles include, "Are service jobs low-paying?" (Spring '96) and "Pension fact or fiction?" (Summer '96).

"Changes in job tenure," whose generic objective is the "presentation of derived statistics," uses existing Labour Force Survey data on number of months worked for the current employer to obtain new statistics on estimated complete length of new jobs. It measures changes in average length of new jobs over the 1981-94 period for several groups. Given its focus on data, it does not attempt to provide behavioural explanations for the changes. The objective is simply to derive and present these new estimates. Other examples of "presentation of derived statistics" include many of our articles on RRSPs and other aspects of retirement incomes.

"Another measure of employment" is a "statistical reminder" in that it aims to inform *Perspectives* readers of developments over the long run. The statistic concerned, the employment/population ratio (also known as the employment rate), is rarely quoted; with our attention focused on changes over the short run, often the last month or last year, we tend to lose track of how such statistics move (or, in the case of the overall employment/population ratio, don't move) over, say, a half century. Such long time series are not readily available, so the article serves to consolidate a great deal of data.

There are many other generic objectives, not all of which will be represented in any one issue of *Perspectives*. For example, "international comparisons" set out simply to present data from outside Canada in conjunction with our own. The objective is not to explain the differences between the Canadian experience and that in other countries. Rather, it is to make available information that would not normally be accessible. In many cases, the foreign data need to be adjusted to be comparable to Canada's, and when this is not possible, such articles provide readers with qualitative information they can use to refine their interpretation of differences between Canada and other countries. Examples include "Labour force participation: An international comparison" (Winter '90) and "International employment trends by industry – a note" (Summer '93).

Perspectives also carries what we refer to as “educational pieces.” These aim to provide the readers, who are also users of the data concerned, an understanding of how the data are created, and what limitations this puts on how they can be interpreted. “Measuring productivity” (Spring '95) and “Defining and measuring employment equity” (Winter '93) are examples.

As hard as we try to make *Perspectives* articles relevant, our effectiveness in attaining our goals would be increased if we had more feedback from our readers. Please give some thought to filling out the Reader Survey found in this issue (page 46). We look forward to hearing from you and will take your comments seriously.

Ian Macredie
Editor-in-Chief



We welcome your views on articles and other items that have appeared in *Perspectives*. Additional insights on the data are also welcome, but to be considered for publication, communications should be factual and analytical. We encourage readers to inform us about their current research projects, new publications, data sources, and upcoming events relating to labour and income.

Statistics Canada reserves the right to select and edit items for publication. Correspondence, in either official language, should be addressed to: Heather Berrea, What's new? Co-ordinator, *Perspectives on Labour and Income*, 5-D Jean Talon Building, Statistics Canada, Ottawa K1A 0T6. Telephone (613) 951-8613; fax (613) 951-4179.

Highlights

■ Another measure of employment

... p. 9

- The employment/population ratio measures the percentage of the working-age population that is employed. A rise or fall in this ratio indicates that growth in employment is faster or slower than growth in the working-age population.
- The post-World War II baby boom, high immigration levels and the aging of the population all had potential to lower the employment/population ratio. Still, it trended up during the 1960s, 1970s and 1980s, suggesting that the economy was able to generate more than enough jobs to keep up with these major demographic events.
- The ratio changed less than many other major labour market indicators over the 50 years studied. It rose from 53.1% to 58.6% from 1946 to 1995, whereas the unemployment rate climbed from 3.4% to 9.5%. This relative stability is the result of some offsetting demographic trends.
- Adult men's employment/population ratio decreased steadily over the period while adult women's rose. In 1946, about 87% of adult men were employed, but by 1995 the rate had decreased to 68.1%. For women, the rate almost tripled over the period, from 17.9% to 52.1%.
- From 54.5% in 1946, the youth ratio declined to its trough of 44% in the early 1960s. Since then, the ratio has displayed a strong sensitivity to business cycles. It hit its peak of 62.7% in 1989, then declined to 52.3% by 1993.
- Employment/population ratios vary widely by province and country. Over the past three decades, the ratios have been highest in Alberta and lowest in Newfoundland. Of the nine countries compared, the United States recorded the highest overall ratio while Italy recorded the lowest. Canada placed fourth.

■ RRSP withdrawals revisited ... p. 16

- Canadians under 65 have been cashing in about one dollar of RRSP savings for every five contributed. In 1991, the number of persons withdrawing and the amounts withdrawn grew dramatically, a direct consequence of the recession and resulting job losses. Since then, cashing in RRSPs has continued to grow, despite improved economic conditions.
- In 1994, 700,000 taxfilers under 65 cashed in \$3.9 billion. More than one-quarter of these persons were between 55 and 64 and they made over one-third of the total withdrawals. Many may have been retired but not yet eligible for other pension benefits. However, 52% were under 45 and they withdrew 37%. Many had low incomes and may have been forced to draw on their RRSP savings.
- Since there have always been fewer women than men contributing to RRSPs and since their average contributions have been more modest, fewer women cash in RRSPs. In 1994, 45% of those withdrawing were women and their withdrawals accounted for 41% of the total taken out.
- People who dip into their RRSP savings not only reduce their future income, but also forfeit part of their savings immediately, because of withholding taxes. Withdrawals not subject to these taxes are possible through the Home Buyers' Plan (HBP) under certain conditions. Between February 1992 and October 1996, 466,000 individuals withdrew \$4.4 billion under this plan.

■ RRSP rollovers ... p. 20

- In 1994, Canadians contributed nearly \$21 billion to RRSPs, of which \$3.8 billion were special transfers or "rollovers" of retiring allowances (or severance payments) to taxfilers' own RRSPs, and pension benefits transferred to spousal RRSPs.

- More than three-quarters of the \$16.5 billion rolled over from 1990 to 1994 was from retiring allowances. On average, retiring allowance rollovers were much greater than pension income transfers (\$25,450 versus \$5,170 in 1994). Lump sum retiring allowances can be quite substantial, particularly for older workers with lengthy job tenure.
- In 1994, 56% of persons with retiring allowance rollovers were aged 50 to 64 and they rolled over 64% of the total. Although 26% were under 45, their share of the total deposits was only 16%.
- Retiring allowance deposits to RRSPs increased 56% from 1990 to 1994. Although these amounts increased throughout the period, the greatest annual increase occurred in 1991. This was likely because of the extensive job layoffs and substantial severance payments to many workers. In the future these rollovers should decline because of limits recently placed on the amounts eligible.
- Pension transfers to spousal RRSPs, disallowed in 1995, benefited mainly pensioners with high incomes. Of every five persons who used this tax-deferral opportunity in 1994, four had total incomes of \$30,000 or more. Nearly all men, they were able to set aside this income in spousal RRSPs and thus reduce their tax obligations while providing retirement savings for their wives.

■ The diversity of managers ... p. 24

- This article compares the popular perception of managers – that of well-educated, highly paid white men working long hours at high-powered jobs – with the managerial and administrative group described by Statistics Canada.
- The 1991 Census revealed that 13% of all workers or 1.7 million people held managerial or administrative jobs according to Statistics Canada's 1980 Standard Occupational Classification (SOC). Twenty-six occupations are represented in this major group.
- The popular perception of managers is somewhat supported by the census data: managers are more likely than non-managers to be male (63% compared with 54%) and university educated (28% compared with 13%); to work long hours (15% compared with 9%), and to have median earnings above \$40,000 (42% compared with 12%).

- There is, however, considerable diversity among the 26 managerial and administrative occupations. For instance, of managers in natural sciences and engineering, 86% are male, 63% have a university degree, 11% work over 50 hours a week and 18% earn \$80,000 or over. At the other end of the spectrum, only 36% of post office managers are male, 5% have a university degree, 7% work long hours and only 2% earn \$80,000 or over.
- The 1991 SOC will reduce this diversity because it increases the number of unit groups from 26 to 43, and defines each occupation more narrowly.

■ Changes in job tenure ... p. 31

- For the Canadian worker the average new job lasted roughly 3.8 years between 1981 and 1985, 3.4 years between 1986 and 1990, and 3.8 years between 1991 and 1994.
- This overall stability masks some important changes in the distribution of job tenures. New jobs have become increasingly polarized into short- and long-term. The result is that workers with more than one year of job seniority are enjoying increasing security, while others are finding it more and more difficult to join their ranks.
- This pattern of increasing polarization persists through all demographic groups, suggesting that it is a pervasive, economy-wide trend. Workers aged 45 and over and workers in Atlantic Canada have experienced large declines in the proportion of jobs lasting beyond one year.
- Declines in jobs lasting over 10 years are concentrated among older workers with high seniority and workers in the manufacturing and trade industries. Long-term jobs in the community services and business and personal services industries have increased significantly.

■ What's new? ... p. 41

- *Income Distributions by Size in Canada, 1995* provides the latest estimates of family and individual incomes by province, sex, family type and other characteristics.

- Updated and available in electronic format, *Annual Unemployment Insurance Statistics* contains articles comparing the new Employment Insurance Program with the old Unemployment Insurance Program. It offers a historical overview of the whole program and provides detailed monthly and/or annual historical data tables.
- *Canada's Changing Retirement Patterns: Findings from the General Social Survey* explores the age of retirement and the main factors likely to explain its diversity. Also explored are the issue of returning to work after initial retirement and retirees' perception of their current financial situation.
- The Total Work Accounts System provides data that integrate information about time spent on both paid and unpaid work of economic value. It is based on time-use diaries collected in the General Social Survey.
- *Industry Profiles* is a new series of publications on Canada's key economic sectors. Each profile focuses on a sector's operating characteristics and performance, as reflected in output, international trade, labour market information, investment, productivity, and so on. *Canada's Food Processing Industry*, *Canada's Information Technology Sector* and *Canada's Machinery Industry* were recently released.
- Highlighted are four new studies of the labour market undertaken by Human Resources Development Canada. The first will test the effectiveness of earnings supplements in encouraging Unemployment Insurance beneficiaries to return to work quickly. The second explores growth in employment and GDP during the 1991-93 recovery. The third uses the Canadian Occupational Projection System to predict future occupational imbalances between supply and demand. Finally, job loss and adjustment experiences of workers aged 45 and over are examined.
- Six reports on the effect of the former Unemployment Insurance (UI) system on workers' behaviour and the economy have been released by Human Resources Development Canada. One examines the effect on regions with high unemployment of a 1990 increase in the UI entrance requirement, from 10 to 14 weeks. Another looks at the relationship between unemployment and seasonal and non-seasonal jobs. Two reports consider, respectively, UI-related employment patterns, and state dependence and Unemployment Insurance. The final two reports consider how UI has generally had a stabilizing effect on the economy.
- Between September and December 1995, the School Leavers Follow-up Survey was conducted. This survey examined transitions not as a one-way movement from school to work, but as a variety of movements that can occur between education, training and the labour market. A comprehensive report will follow in 1997.
- Carried out in November 1995, The Survey of Work Arrangements captured the rich variety of work arrangements in the workforce. It covered issues such as shift work, flexitime, home-based work, temporary jobs, paid and unpaid overtime, union membership, firm size, wage and non-wage benefits and moonlighting. The microdata file is now available.
- *Reading the Future: A Portrait of Literacy in Canada* expands and extends the analysis of the 1994 Canadian data presented in *Literacy, Economy and Society: Results of the first International Adult Literacy Survey*. It also includes new data on the distribution of literacy by region and language in Canada, as well as by several sub-populations.
- "Intergenerational Equity in Canada," a conference sponsored jointly by Statistics Canada and Human Resources Development Canada, will be held in Ottawa, February 20 to 21, 1997. □

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Another measure of employment

Ernest B. Akyeampong

The employment/population ratio is one of the least well known of the major labour market indicators published each month by Statistics Canada. This indicator, also referred to as the employment rate, measures the proportion of the working-age population in any demographic group (for example, age, sex, geographical area) that is employed. Because changes in this ratio can and do influence major socioeconomic programs such as social assistance, Unemployment (now called Employment) Insurance, and retirement (pension) incomes, its relative obscurity in public debates is surprising.

This paper examines the strengths and limitations of this indicator, tracks its movements over the past half century, and compares provincial ratios and those of Canada and several industrialized nations. It also offers some likely reasons for the ratio's low public profile and suggests directions for future research.

Ratio more sensitive when falling...

The employment/population ratio shows what percentage of the working-age population is employed.¹ A rise (or drop) in the ratio generally indicates that growth in employment during the period of observation is faster (or slower) than growth in the working-age population. Thus, because the annual employment growth (2.1%) between 1993 and 1994 exceeded growth in the working-age population (1.5%), the ratio rose (from 58.2% to 58.5%). In 1995, the gap

in the two growth rates was narrower, causing the ratio to inch up to 58.6% (Table).

Movements in the employment/population ratio differ from those observed for some other major labour market indicators. For example, fluctuations in this ratio from 1976 to 1995 were greater than those exhibited in the participation rate but smaller than those in the unemployment rate (Chart A).

The ratio is very sensitive downward, though less so upwards. This is because the denominator (working-age population) generally increases over time whereas the numerator (employment) moves in either direction, depending on the health of the economy (Table). Thus, upward pressure on the ratio resulting from employment growth is offset by the rise in the working-age population, while a decline in employment appears to be magnified in the ratio. The other major labour market indicator exhibiting similar movements is the labour force participation rate, which also uses the working-age population as denominator, with employment plus unemployment as numerator.

tracks the economy well...

The employment/population ratio appears to keep step with the Canadian economy, as employment generally rises in good economic times and falls in recessions. Following a sustained climb in the generally prosperous 1970s, the ratio fell during the 1981-82 recession. It resumed its upward climb during the recovery and expansionary years of 1983 to 1989, and fell again during the 1990-92 recession. Its weak increase since then reflects the slower pace of job growth during the economic upturn.

As a barometer of the economy, the employment/population ratio compares favourably with the unemployment rate. Movements in the ratio are the inverse of the unemployment rate, however, and the slopes and amplitudes of the latter are greater. Compared with the participation rate, the employment/population ratio is more sensitive to changes in the economy and labour market. Because the labour force is made up of the employed and unemployed, the extent to which the labour force participation rate rises and falls over time is lessened.

and generally reflects economic maturity

A country's state of economic development (as measured by per capita gross national product [GNP]) and its employment/population ratio appear to be correlated. In general, highly developed nations have higher employment/population ratios, and vice versa. For example, in 1993 Switzerland boasted the highest per capita GNP (\$36,410) and a very high employment/population ratio (80.2% of 15 to 64 year-olds) among countries in the Organisation for Economic Co-operation and Development (OECD); Turkey reported a very low GNP (\$2,120) and a very low employment/population ratio (53.3%).²

Ratio's potential and limitations

The ratio's use in analysis of major socioeconomic programs deserves to be explored. Other things being equal, an upward movement in the ratio portends an easing on welfare caseloads and Unemployment Insurance payments. It usually means an increase in tax revenues and in

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Table
Labour force estimates, both sexes, annual averages

	Population 15 years and over*	Labour force			Not in labour force	Partic- ipation rate	Unem- ployment rate	Emp./ pop. ratio
		Total	Employ- ment	Unem- ployment				
		'000					%	
1946	8,779	4,829	4,666	163	3,950	55.0	3.4	53.1
1947	9,007	4,942	4,832	110	4,065	54.9	2.2	53.6
1948	9,141	4,988	4,875	114	4,153	54.6	2.3	53.3
1949	9,268	5,055	4,913	141	4,213	54.5	2.8	53.0
1950	9,615	5,163	4,976	186	4,453	53.7	3.6	51.8
1951	9,732	5,223	5,097	126	4,509	53.7	2.4	52.4
1952	9,956	5,324	5,169	155	4,632	53.5	2.9	51.9
1953	10,164	5,397	5,235	162	4,767	53.1	3.0	51.5
1954	10,391	5,493	5,243	250	4,898	52.9	4.6	50.5
1955	10,597	5,610	5,364	245	4,987	52.9	4.4	50.6
1956	10,807	5,782	5,585	197	5,025	53.5	3.4	51.7
1957	11,123	6,008	5,731	278	5,115	54.0	4.6	51.5
1958	11,388	6,137	5,706	432	5,250	53.9	7.0	50.1
1959	11,605	6,242	5,870	372	5,363	53.8	6.0	50.6
1960	11,831	6,411	5,965	446	5,420	54.2	7.0	50.4
1961	12,053	6,521	6,055	466	5,531	54.1	7.1	50.2
1962	12,280	6,615	6,225	390	5,665	53.9	5.9	50.7
1963	12,536	6,748	6,375	374	5,787	53.8	5.5	50.9
1964	12,817	6,933	6,609	324	5,884	54.1	4.7	51.6
1965	13,128	7,141	6,862	280	5,986	54.4	3.9	52.3
1966	13,083	7,493	7,242	251	5,590	57.3	3.4	55.4
1967	13,444	7,747	7,451	296	5,697	57.6	3.8	55.4
1968	13,805	7,951	7,593	358	5,854	57.6	4.5	55.0
1969	14,162	8,194	7,832	362	5,968	57.9	4.4	55.3
1970	14,528	8,395	7,919	476	6,133	57.8	5.7	54.5
1971	14,872	8,639	8,104	535	6,233	58.1	6.2	54.5
1972	15,186	8,897	8,344	553	6,289	58.6	6.2	54.9
1973	15,526	9,276	8,761	515	6,250	59.7	5.5	56.4
1974	15,924	9,639	9,125	514	6,285	60.5	5.3	57.3
1975	16,323	9,974	9,284	690	6,349	61.1	6.9	56.9
1976	17,124	10,530	9,776	754	6,594	61.5	7.2	57.1
1977	17,493	10,860	9,978	882	6,633	62.1	8.1	57.0
1978	17,839	11,265	10,320	945	6,574	63.1	8.4	57.9
1979	18,183	11,630	10,761	870	6,552	64.0	7.5	59.2
1980	18,550	11,983	11,082	900	6,567	64.6	7.5	59.7
1981	18,883	12,332	11,398	934	6,551	65.3	7.6	60.4
1982	19,177	12,398	11,035	1,363	6,779	64.7	11.0	57.5
1983	19,433	12,610	11,106	1,504	6,823	64.9	11.9	57.1
1984	19,681	12,853	11,402	1,450	6,828	65.3	11.3	57.9
1985	19,929	13,123	11,742	1,381	6,807	65.8	10.5	58.9
1986	20,182	13,378	12,095	1,283	6,804	66.3	9.6	59.9
1987	20,432	13,631	12,422	1,208	6,802	66.7	8.9	60.8
1988	20,690	13,900	12,819	1,082	6,789	67.2	7.8	62.0
1989	20,968	14,151	13,086	1,065	6,816	67.5	7.5	62.4
1990	21,277	14,329	13,165	1,164	6,948	67.3	8.1	61.9
1991	21,613	14,408	12,916	1,492	7,205	66.7	10.4	59.8
1992	21,986	14,482	12,842	1,640	7,504	65.9	11.3	58.4
1993	22,371	14,663	13,015	1,649	7,708	65.5	11.2	58.2
1994	22,717	14,832	13,292	1,541	7,884	65.3	10.4	58.5
1995	23,027	14,928	13,506	1,422	8,100	64.8	9.5	58.6

Source: Labour Force Survey

* Population 14 years and over from 1946 to 1965.

the insurance fund.³ Similarly, an upward trend suggests increased participation in both public and private pension plans.⁴ Increased coverage helps to sustain these plans and therefore to provide retirement incomes for many Canadians. So far, however, any statistical association between the ratio and social programs remains to be carefully studied and articulated.

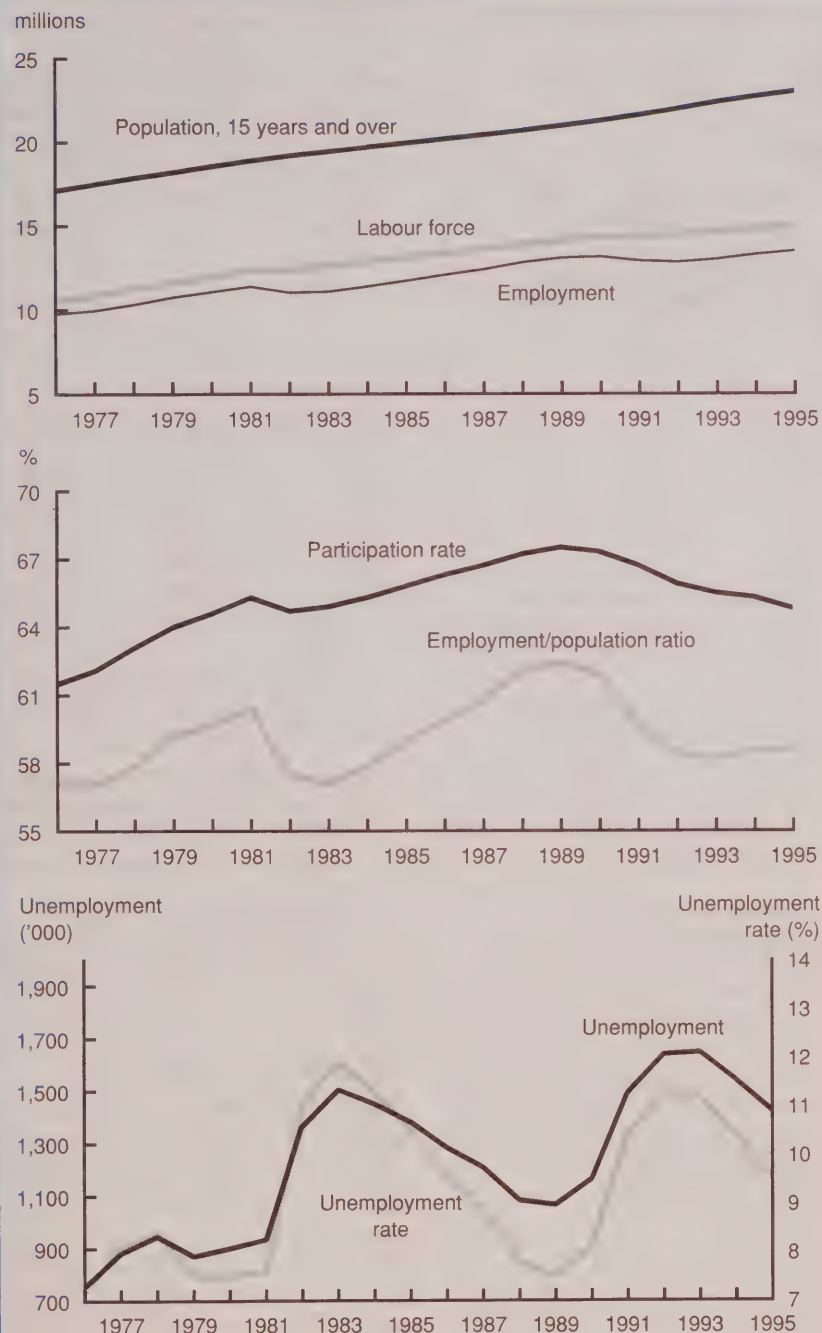
By itself, the employment/population ratio offers no clues about quality of jobs (for example, wage levels or distributions), or the mix (for example, full-time/part-time or employee/self-employed). But the same can be said of many other major labour market indicators considered in isolation. And while it is theoretically possible to reformulate the ratio to incorporate certain job attributes, the added value of such reformulation has yet to be explored.

Overall stability masks offsetting trends

Like many major market indicators, the overall employment/population ratio has fluctuated in response to changes in economic conditions;⁵ three main trends are discernible over the past 50 years (Chart B).

From 1946 to the early 1960s, the overall ratio trended downward, from 53.1% to just a little over 50%. Upward movements in the rate for adult women failed to offset the downward spiral in youths' (both sexes combined) and adult men's ratios. Thereafter, the overall ratio began an upward trend (driven mainly by increases in women's rate), to reach 60.4% at the onset of the 1981-82 recession. Following a brief slide in 1982 and 1983, the ratio resumed its climb in 1984, rising to its peak of 62.4% in 1989, just before the last recession. The ratio then dropped once more, and over the past four years it has remained fairly steady, around 58.5%.

Chart A
How some major labour market indicators compare.



Source: Labour Force Survey

Despite such movement, the employment/population ratio has exhibited more stability than many other major labour market indicators. From 53.1% in 1946, it had risen to only 58.6% by 1995. In contrast, the unemployment rate during the same period climbed from 3.4% to 9.5%. The overall employment/population ratio has been relatively stable because various demographic groups have cancelled out each other's movements.

Men's ratio falls, women's rises

The employment/population ratios of adult men and women (aged 25 and over) have displayed starkly different trends over the past 50 years. With few exceptions, men's decreased steadily while women's rose. In 1946, about 87% of adult men were employed; by 1976, the level had fallen to 77.8%, and by 1995, to 68.1%. A gradual departure from the ranks of the employed, voluntary or otherwise, notably among older, poorly educated men, was responsible for most of the decline.⁶

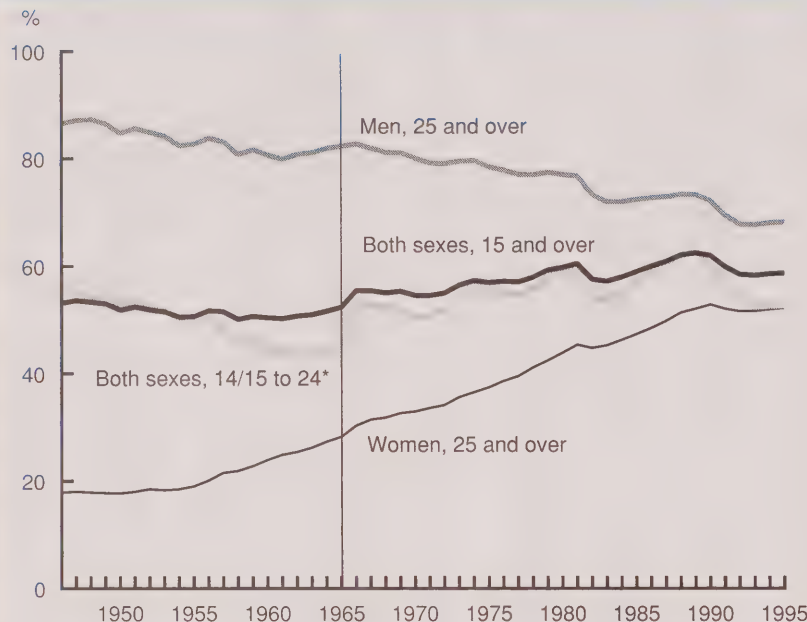
The rate for women tripled over the same period. Their growing presence in the workforce was explained partly by their changing career aspirations and higher educational attainment, as well as families' need for two incomes. In 1946, fewer than one in five (17.9%) adult women were working; by 1970 the ratio had risen to almost one in three (32.9%), and since 1987 has registered one in two (52.1% in 1995).

Youth rate most sensitive

Of the three major age/sex groups studied in this paper, the employment/population ratio of youths (15 to 24 year-olds, both sexes combined) has displayed the most sensitivity to business cycles. Starting at 54.5% in 1946, it declined to

Chart B

Women's employment/population ratio has risen dramatically since the mid-1950s.



Source: Labour Force Survey

* In 1966, 14 year-olds were removed from the LFS target population. As a result, both the youth and overall employment/population ratios shifted that year.

roughly 44% in the first half of the 1960s. It shifted upward to 53.0% following the Labour Force Survey's exclusion of 14 year-olds from the working-age population in 1966,⁷ but then continued its decline until 1970 (50.3%), probably because many young people were furthering their studies.

Movements in the youth ratio between 1971 and 1989 tracked the business cycles closely, though the overall trend was upward. However, after hitting its peak in 1989 (62.7%), the ratio declined by over 10 percentage points to 52.3% by 1993 – evidence of young people's few opportunities for employment. The rate has improved little during the current economic upturn. Faced with poor job prospects, many young Canadians in recent years

have opted to remain in school (Sunter, 1994).

Economy withstands demographic change

Major demographic events can affect the employment/population ratio. Three such events are worthy of note in the Canadian context: the post-World War II baby boom, high immigration during the postwar era, and the aging of the population. All three had the potential to lower the ratio.

The oldest baby boomers reached working age in the early 1960s. In order to accommodate this sudden bulge in the working-age population, employment growth needed to expand accordingly. This downward pressure on the ratio was in effect until the start

of the 1980s, when the youngest reached working age.

The high immigration levels during the postwar period also put pressure on the ratio. Although annual immigration levels have fluctuated over the years, the annual average more than tripled from around 43,000 in the 1940s to 140,000 from the 1950s to the 1980s. From 1990 to 1995 the annual average was even higher (230,000).

So too has the aging of the population had a dampening effect on the ratio. In 1995, Canadians aged 55 and over formed 25.1% of the working-age population, higher than their 1950 level (21.5%). Because they have always had a lower employment/population ratio, and since that ratio – particularly for older men – has trended downwards over the past two decades (in line with their labour force participation rate) (Gower, 1995), older Canadians have had a growing influence on the overall employment/population ratio.

In spite of these downward pressures, the overall employment/population ratio trended up during the 1960-to-1989 period, suggesting that the economy was able to generate jobs at high enough rates to more than compensate for the above-noted major demographic events.

Alberta has highest rate; Newfoundland, the lowest

Employment/population ratios vary widely by province (Chart C). Over the past three decades, the highest ratios have been in Alberta, and the lowest, in Newfoundland. In 1995, Alberta reported 66.4%, and Newfoundland, just 43.4%. Alberta was followed by Manitoba and Saskatchewan (each with 61.4%) and Ontario (60.0%). In British Columbia, the rate was 59.8%, in Prince Edward Island, 56.0%, and

Chart C

Alberta had the highest employment/population ratio overall and for both men and women in 1995.



Source: Labour Force Survey

in Quebec, 55.2%. Nova Scotia and New Brunswick had slightly more than half their working-age populations employed.

With a few exceptions, the provinces maintain these rankings when the ratios of men and women are examined separately. Men in Alberta recorded the highest rate (73.1%) in 1995 and men in Newfoundland, the lowest (47.8%). Similarly, women were most likely to be employed in Alberta (59.7%), and least likely to be working in Newfoundland (38.9%).

United States has highest rate; Italy, the lowest

Among selected industrialized countries, the United States recorded the highest overall ratio (62.9%) in 1995, followed by Japan (60.9%) and Australia (59.1%). Canada placed fourth (58.6%)

(Chart D). Germany, France and Italy recorded relatively low rates. Indeed, in Italy, only 41.8% of the working-age population was employed in 1995.

An examination of the national rates by sex reveals some interesting results. In Japan, 3 out of 4 working-age men were employed. They were distantly followed by men in the United States (70.8%), Australia (68.1%) and Canada (65.5%). Among women, the United States led the rest with 55.6%, followed closely by Sweden (54.7%), Canada (52.1%), and Australia (50.3%). Japanese women placed sixth with a rate of 48.0%. Germany, France and Italy (in descending order) recorded the lowest rates among men as well as women. In Germany (41.2%) and France (40.7%), just 4 in 10 women of working age were

employed; in Italy the figure was a mere 28.3%.

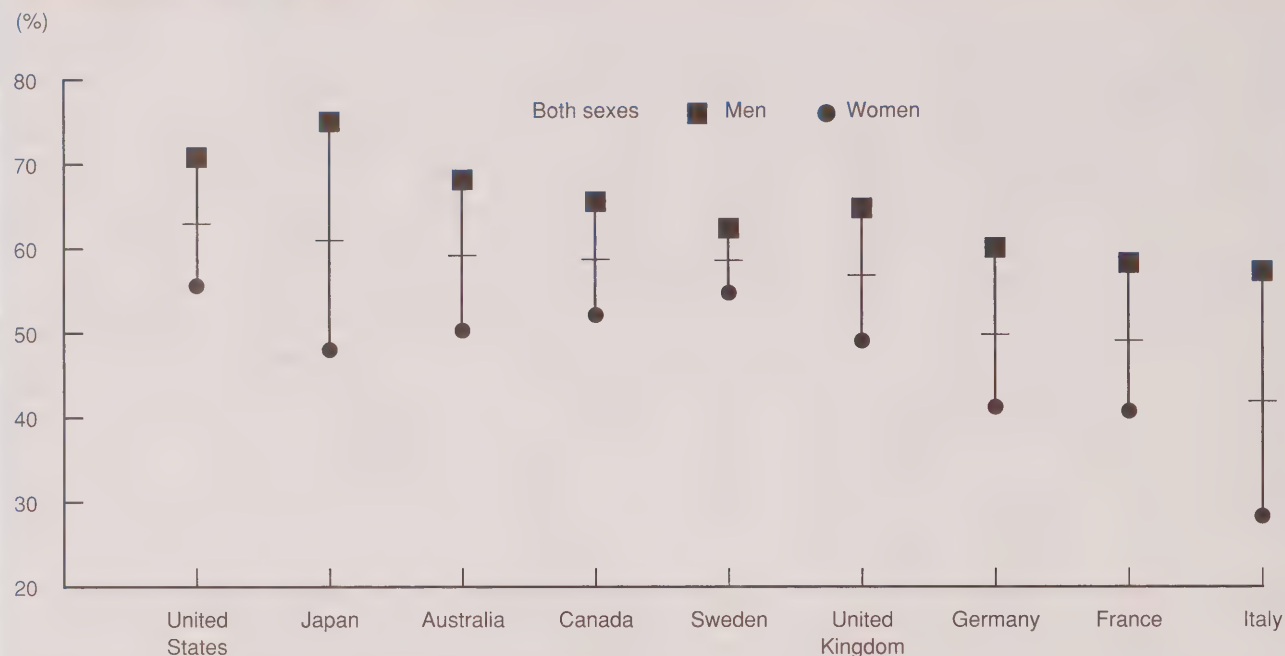
Discussion

The employment/population ratio is a good barometer of the state of the economy. The relative stability (indeed, the slight increase) in the ratio over the past half century attests to how well the economy has withstood the potential dampening effects of certain demographic changes. In fact, among several industrialized countries Canada has a relatively high proportion of its working-age population employed. (An examination of the sources of geographical ratio differences, while interesting in itself, is outside the scope of this paper.)

The ratio's potential analytical applications *vis-à-vis* certain social programs have also been noted here.

Chart D

The gap between men's and women's employment/population ratios varies by country.



Sources: Labour Force Survey; U.S. Bureau of Labor Statistics

Note: Data relate to the total or civilian non-institutionalized working-age population, except that the institutionalized working-age population is included in Japan and Germany. All data approximate U.S. labour market definitions so as to make these comparisons meaningful. Reference year was 1995 for all countries but the United Kingdom, Germany and Italy, whose overall figures were for 1995, but whose data for men and women were for 1994. Data for Germany refer to the Federal Republic of Germany before unification.

Why, then, has this indicator been so little used? At most, there has been modest attention paid to the overall rate. And, since month-to-month changes in the overall rate are small, further scrutiny has been rare. The very stability of the ratio masks some interesting offsetting trends, however. For instance, as noted earlier, while the ratio for adult men has been trending downward, that of adult women has taken the opposite route and that of youths has been most sensitive to business cycles. The factors underlying these trends and their implications for social programs, among others, deserve to be fully researched. Such research efforts could help raise the analytic value

of this potentially important, but neglected labour market indicator.

Notes

1 Since 1966, the working-age population has included persons aged 15 and over. Employment is defined here as any work for pay or profit in the "formal" market economy. It consists of paid work in the context of an employer-employee relationship, or self-employment. It also includes unpaid family work, defined as unpaid work that contributes directly to the operation of a farm or business owned or operated by a family member.

2 Data published by both the OECD (1996) and the International Labour Office (ILO, 1995) show a correlation between per capita GNP and the employment/population ratio for 1993:

Country	Per capita GNP 1993 US\$	Emp./pop. ratio (15-64 year-olds) %
Switzerland	36,410	80.2
Japan	31,450	74.2
Norway	26,340	71.9
Sweden	24,830	71.2
United States	24,750	71.6
Canada	20,670	66.7
Spain	13,650	45.7
Ireland	12,580	52.6
Portugal	7,890	67.2
Greece	7,390	53.2
Turkey	2,120	53.3

Sources: ILO; OECD

Also, the ratio is affected by the prevailing cultures, norms and attitudes of a society (ILO, 1995).

3 The Unemployment Insurance Program (now known as Employment Insurance Program) was designed to be self-financing, with contributions coming from both employers and employees. In bad economic times, the fund is heavily used, and benefit payments often exceed contributions, putting it in a deficit position. The reverse is true in good times, when it is usually in surplus.

4 Public pension plans refer to the Canada and Quebec Pension Plan (C/QPP). Private pension plans refer to employer-sponsored pension plans (registered pension plans or RPPs), registered retirement savings plans (RRSPs) and registered retirement income funds (RRIFs).

5 Two Labour Force Survey design changes also affected the overall rate: the exclusion of 14 year-olds from the working-age population in 1966 (see note 7 for details), and the decision in 1975 to abolish the restriction that married women on farms could be counted as employed only if they regularly worked 20

hours or more each week. As well, the admission of Newfoundland into Canada in 1949 (a province with a low employment/population ratio) altered the rate slightly.

6 The employment/population ratio for men aged 55 or over with fewer than nine years of schooling, for example, fell from 36.7% in 1976 to only 19.4% in 1995.

7 In 1966, 14 year-olds were excluded from the Labour Force Survey's working-age population partly because many provinces required school attendance at that age. Since relatively few 14 year-olds participate in the workforce, this exclusion resulted in a very large jump of 8.0 percentage points (to 53.0%) in the youth rate and a 3.1 percentage-point increase (to 55.4%) in the overall rate that year.

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RRSP withdrawals revisited

Hubert Frenken

For a number of years, Canadians under 65 years of age have cashed in about one dollar of registered retirement savings plan (RRSP) savings for every five contributed. From 1990 to 1994 they took out \$16.6 billion. Between February 1992 and October 1996 they withdrew an additional \$4.4 billion through the Home Buyers' Plan (HBP).

Whereas pension accruals in nearly all employer-sponsored registered pension plans (RPPs) are locked in after two to five years of plan participation and are available only at retirement (see *RPP locking in*), RRSP contributions can be withdrawn any time. It has been suggested that this practice defeats the prime objective of the program, namely, to encourage workers (especially those with no access to RPPs) to save for retirement (William M. Mercer Ltd, 1993 and Cohen, 1993).

This article examines the extent of RRSP withdrawals in recent years, including those made under the HBP. It identifies some characteristics of the taxfilers who dipped into these funds before age 65 and suggests reasons for doing so. It also looks at how withdrawals affect participants' immediate tax obligations and their future retirement savings.

Considerable amounts and growing

Withdrawals from RRSP savings have always been possible, but no data were available on the extent of this practice until 1988, when the T1 tax return required such amounts to be reported separately.

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RPP locking in

Under federal-provincial regulatory pension legislation an RPP member leaving the plan after a specified period of time (two years in most provinces) through layoff or voluntary departure has access to his or her pension accruals only at retirement. In most instances the accumulated savings are transferred to a locked-in RRSP or similar vehicle and the financial institution managing these funds ensures that benefits are not paid out until the designated retirement age.¹ These amounts, though part of total RRSP assets under the financial institutions' administration, are not treated as RRSP contributions, but as pension monies still subject to the legislation. For details see Statistics Canada (1996a).

That year, 410,000 taxfilers under age 65 reported some \$2 billion in RRSP income.² The amounts withdrawn since then have continued to rise. In 1994, taxfilers under 65 cashed in \$3.9 billion out of assets estimated at well over \$200 billion.

Cashing in of RRSP savings grew dramatically in 1991. This situation was attributed largely to the recession and its accompanying job losses. Nearly 20% of those who made withdrawals had neither

employment income nor unemployment insurance benefits that year; even those with employment income earned on average relatively little. (Frenken and Standish, 1994).

From 1991 to 1994, the number of persons and the amounts withdrawn grew by 16% and 22%, respectively (Table 1). This is rather puzzling, since any who had exhausted their savings in previous years could no longer withdraw. As well, improved economic conditions should, in theory, have reduced the dependency on RRSP withdrawals.

More older persons

These increases were attributable primarily to older taxfilers. The number of persons under 35 making RRSP withdrawals remained virtually unchanged from 1991 to 1994. But the number between 55 and 64 increased 18% and between 45 and 54, 32% (Table 2). Many may well have been retired, either voluntarily or involuntarily, and drawing from retirement savings before becoming eligible for other types of pension income, such as Canada and Quebec Pension Plan benefits (age 60), Old Age Security payments (age 65) or RPP benefits

Table 1
RRSP withdrawals * by taxfilers under 65

	1990	1991	1992	1993	1994
Number of taxfilers ('000)	496	604	635	692	700
Amount (\$ millions)	2,498	3,182	3,403	3,671	3,881
Average (\$)	5,040	5,270	5,360	5,310	5,550

Sources: Small Area and Administrative Data Division and RRSP room file
* Excludes withdrawals under the Home Buyers' Plan.

(age varies according to the conditions of the plan).

In fact, more than one-quarter of persons cashing in RRSPs in 1994 were between 55 and 64 and they withdrew over one-third of the total withdrawals. However, a majority (52%) were under 45 and they reported nearly 37% of all withdrawals. These people were not likely ready for retirement and some may have been forced to draw on their RRSP savings for economic reasons.³ Of this group, 30% had total incomes (including the amount withdrawn) under \$20,000.⁴

Despite this evidence, it appears that many of those who made RRSP withdrawals had high incomes in 1994. While just one in five taxfilers under 65 had a total income greater than \$40,000, nearly one-third in this age group who made withdrawals reported this much.

There have always been fewer women than men contributing to RRSPs and their average contributions have been more modest (Frenken, 1995). In 1994, 45% of all taxfilers under 65 reporting RRSP income were women, scarcely changed from the 44% recorded in 1991. Similarly, women's share of the receipts was 41%, slightly higher than the 39% noted three years earlier.

Effects on savings and taxes

People who dip into their RRSP savings not only reduce their future income, but also forfeit part of their savings immediately. Amounts withdrawn are subject to a withholding of income tax and may, depending on the taxfiler's marginal rate, result in further tax when the annual return is filed.⁵ Persons with low income may actually have a larger portion withheld than the

Table 2
RRSP withdrawals * by age of taxfiler

	1991				1994			
	Number		Amount		Number		Amount	
	'000	%	\$ millions	%	'000	%	\$ millions	%
Total	604	100	3,182	100	700	100	3,881	100
Under 35	166	27	508	16	168	24	461	12
35-44	168	28	842	26	197	28	956	25
45-54	116	19	759	24	153	22	1,092	28
55-64	154	26	1,074	34	182	26	1,373	35

Sources: Small Area and Administrative Data Division and RRSP room file

* Excludes withdrawals under the Home Buyers' Plan.

amount of tax generated by the withdrawal. They receive a refund after their return is assessed.

Currently, the tax is withheld at the following rates:

Amount withdrawn	Proportion withheld ^a	
	Quebec	Other provinces/territories
	%	
Less than \$5,001	21	10
\$5,001 to \$15,000	30	20
Over \$15,000	35	30

Taxfilers making withdrawals may significantly reduce their future retirement income, since all tax-exempt investment income that these savings would have realized is lost. For example, a 65 year-old taxfiler who removed \$5,000 at age 35 will have forfeited more than \$50,000 in RRSP savings, assuming 8% interest compounded annually.

Home Buyers' Plan

Some taxfilers do have one means of using their RRSP savings without incurring the tax charges,

through the Home Buyers' Plan. This program, in effect since February 1992, has permitted maximum withdrawals of \$20,000 from RRSP savings to finance the purchase or construction of a home. But amounts withdrawn must be fully repaid to the home buyer's RRSP in instalments within 15 years (see *HBP conditions*).

From February 1992 to October 1996, Revenue Canada registered HBP applications for 466,000 individuals who withdrew nearly \$4.4 billion (Table 3). Although the first year was the busiest, participation in the program has continued to be substantial.

At present there are no data on the age, income or sex distribution of the participants. Nor is it known what effect the plan has had on home construction. No doubt, many participants would otherwise have been unable to purchase a home. Others may have had sufficient resources but decided to increase their down payment and reduce their outstanding mortgage.

Much debate has centred on the advantages and disadvantages of the program (Cohen, 1992 and Kinross, 1996). Critics are

HBP conditions

The Home Buyers' Plan (HBP), intended to expire in March 1993, was initially extended to March 1994 and subsequently made permanent. In 1995, it was restricted to participants who had not owned a home in the previous five years. The first repayments were due in 1995 for amounts withdrawn in 1992, 1993 and the first two months of 1994.

Amounts withdrawn under this plan are in a sense still part of the person's RRSP assets, but temporarily redirected from traditional investments to a stake in the taxfiler's home.

concerned that the advantage of being able to purchase a home is offset by the disadvantage of losing compound, tax-free interest earned by the RRSP savings, income that cannot be recovered despite the repayment schedule.⁷

Summary and conclusion

RRSP withdrawals by Canadians under age 65, which increased dramatically in 1991, continued to grow in the next three years despite improved economic conditions. The greatest growth, both in participation and amounts withdrawn, occurred among individuals aged 45 to 54. However, in 1994, one-quarter of those cashing in RRSPs before the historical retirement age of 65 were between 55 and 64, and they accounted for 35% of the total receipts. They may have needed these savings to tide them over until becoming eligible for pension benefits. More than half were under 45 and they withdrew over a third of the total. Many of these people had low incomes.

A large number of taxfilers used some if not all of their RRSP savings as a down payment to purchase a home under the Home

They are not reported as RRSP withdrawals on the tax return; however, missed payments are treated as cash withdrawals and taxed accordingly. For example, someone who withdrew \$15,000 in 1992 is required each year to repay \$1,000 to an RRSP from 1995 to 2009. Failure to make a payment means that \$1,000 of RRSP income will be added to the filer's tax return. A defaulted payment cannot subsequently be caught up; that is, one may not deposit \$2,000 in the subsequent year and claim all of this as an HBP repayment.

Buyers' Plan (HBP). The first of the associated repayment instalments were due in 1995. Tax data for that year will permit a more in-depth analysis of the characteristics of the participants in this plan, as well as the extent of their repayments and the degree of success in meeting this obligation (see *Data sources and acknowledgements*).

RRSP withdrawals, even those under the HPB, reduce retirement savings. Moreover, regular with-

drawals may result in sizeable immediate tax obligations. The reasons for dipping into these savings are varied, but most taxfilers make withdrawals out of financial need. Assuming no changes in legislation, and continued uncertainty in the labour market, this practice will likely grow (Townson, 1995).

Data sources and acknowledgements

Most data used in this article and in "RRSP rollovers" are from the RRSP room file of the Pensions Section, Labour Division. For a description of this file see Statistics Canada (1996a). Data for 1995, which will include new figures on the HBP and on excess contributions, will soon be available. For further information contact the Pensions Section at (613) 951-4033. Information on the Home Buyers' Plan is from the Individual Returns and Payments Processing Directorate of Revenue Canada. The author wishes to thank Carl Sarazin and Karen Dorman of the Pensions Section and Daniel Desjardins of Revenue Canada for their assistance.

□

Table 3
Participation in Home Buyers' Plan *

	Number of participants	Amounts withdrawn
	'000	\$ millions
All periods	466	4,372
February 26, 1992 to March 1, 1993	158	1,536
March 2, 1993 to March 1, 1994	102	1,008
March 2, 1994 to December 31, 1994	56	453
January 1, 1995 to December 31, 1995	78	713
January 1, 1996 to October 23, 1996	71	663

Source: Revenue Canada, Individual Returns and Payments Processing Directorate

* Number and amounts recorded as of October 23, 1996. Some additional applications may have been approved but not yet added to the database.

■ Notes

1 Generally, only benefits accrued after the date specified in the legislation (January 1, 1987 in Ontario, for example) are locked in. Benefits accumulated earlier are usually received in cash or transferred tax free to a non-locked-in RRSP. In time, virtually all RPP accruals will be locked in.

2 The amounts reported as RRSP income on the tax return include both RRSP annuity payments and cash withdrawals. However, for persons under 65 annuity income is negligible. For example, in 1991, 1992 and 1993 fewer than 3% of taxfilers under 65 with RRSP income received all or part of that income from annuities and just 2% of the total benefits were paid this way.

Included in the withdrawals are excess contributions for which a comparable deduction was claimed. These contributions were made in previous years and not claimed as deductions at that time. They may now be withdrawn and reported on the tax return as both a withdrawal and a deduction. Under certain circumstances they may have resulted in a penalty tax.

3 Statistics Canada's Survey of Labour and Income Dynamics has revealed that Canada's labour force is in constant transition, resulting in frequent jobless periods for many workers. In 1993, 4.3 million persons lost a job, found a job or moved in or out of the labour force (Statistics Canada, 1996b).

Other uses of RRSP savings may be to support oneself during a period of voluntary absence from work while looking after young children or while attending school, to pay for children's education, to start a business, or to travel.

4 Because the amounts withdrawn are included in total income, they may distort the analysis. Also, total incomes increased dramatically for many taxfilers in 1994, their last opportunity to claim deductions on capital gains accrued on rental and other property. In order to avoid paying tax on these gains in the future, taxfilers were required to report the taxable portion on their 1994 tax returns. As a result, over 1.4 million taxfilers reported \$32.5 billion in deductible capital gains that year.

5 Also, financial institutions impose a significant penalty when certain investments are liquidated before their designated date of maturity.

6 The amount withdrawn would be reduced by this percentage. For example, an Ontario resident withdrawing \$4,000 in 1996 would receive only \$3,600. The remaining \$400 would be sent by the administrator of the RRSP to Revenue Canada. The Quebec rate is different, since, unlike other provinces, whose taxes are collected by Revenue Canada, it collects its own income tax. The Quebec rate includes federal and Quebec tax, as follows: 5% and 16% for less than \$5,001; 10% and 20% for \$5,001 to \$15,000; and 15% and 20% for over \$15,000.

7 Repayments also add to future "shelter costs" of mortgage, property tax and other expenses. Payments may also hamper the taxfiler from continuing to contribute to RRSPs. As well, the volatility of real estate values may serve to make a home purchase a less certain investment than before.

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RRSP rollovers

Hubert Frenken

In 1994, Canadians contributed nearly \$21 billion to registered retirement savings plans (RRSPs). Of this total, \$17.2 billion were "normal" contributions, those charged against taxfilers' available deduction limits or RRSP room. The remaining \$3.8 billion were special transfers or "rollovers" of certain types of income: retiring allowances, or severance payments, which were deposited into taxfilers' own RRSPs, and pension benefits, which were transferred to spousal RRSPs (for definitions see *Supplementary contributions*). As with normal RRSP contributions, the amounts rolled over could be claimed as deductions against current income for tax purposes.

In the early 1990s these deposits became an important part of RRSP savings, not only because of their sheer size, but also because of the types of individuals who made use of these opportunities. In 1995, however, pension transfers to spousal RRSPs were disallowed and, in 1996, limits were placed on rollovers of retiring allowances. The first change in legislation had an immediate effect on retirement savings. The second will become increasingly important in the next few years. This article examines how large these rollovers were, who benefited from them, and who will be most affected by these legislative revisions.

Considerable savings

From 1990 to 1994, rollovers represented approximately 20% of all RRSP deposits. Over this period more than 750,000 individuals claimed \$16.5 billion in rollover

Supplementary contributions

Since 1966, taxfilers have been allowed to transfer tax free retiring allowances and various types of pension income to RRSPs, within certain limits. These rollovers were not subject to taxfilers' standard deduction limits or RRSP room.¹

Retiring allowances are lump sum payments received by employees on retirement or loss of job and include settlements for unused sick leave, payments in recognition of long service or compensation for job termination. The maximum amount eligible for rollover depends on how long the taxfiler worked for the employer and whether or not he or she participated in an employer-sponsored registered pension plan (RPP) or deferred profit sharing plan (DPSP) during that time. From 1989 to 1995, the limit was \$2,000 for each year or part-year of employment, plus an extra \$1,500 for each year or part-year before 1989 during which no benefits were accrued under an RPP or DPSP. The allowance had to be transferred directly by the employer to the RRSP to avoid withholding taxes.²

Included with the rollovers reported on the tax returns are transfers of specific types of benefits from

some pension plans, RRSPs and registered retirement income funds (Revenue Canada, 1993). These amounts are not identifiable, but are small in aggregate and affect few taxfilers.

Pensioners were able to roll over benefits from RPPs, DPSPs, the Canada and Quebec Pension Plan (C/QPP) and Old Age Security (OAS) into their own RRSPs until 1990, when this provision was disallowed. However, from 1989 to 1994 they were given the option to transfer up to \$6,000 a year of their monthly RPP or DPSP benefits into spousal RRSPs.³ This concession was an interim measure until the new tax-assistance legislation implemented in 1991 took full effect. For further information, see Frenken (1995b).

Spousal RRSPs have existed since 1974, when taxfilers were permitted to make contributions subject to their standard deduction limits to an RRSP registered in their spouses' names and to claim these contributions on their own tax returns. Spousal contributions permit the person with the higher income to claim the deduction and the one with the lower income to receive the retirement benefits, often resulting in significant tax savings.

Retiring allowance deposits to RRSPs increased 56% between 1990 and 1994, while pension benefit rollovers grew by 28% (Table 1). For the former, the greatest annual increase occurred in 1991. This was likely the consequence of extensive job layoffs and substantial severance payments to many workers that year.⁵ Both the number of persons with retiring allowance rollovers and the amounts rolled over continued to increase in 1993 and 1994, although the average rollover declined from the 1991 peak. Job terminations, particularly of older

deductions on their tax returns. The amount of pension income transferred to spousal RRSPs and the number of persons using this option make up only a small proportion of all RPP/DPSP benefits and beneficiaries. In 1994, less than 4% of these payments was rolled over and only 8% of all eligible taxfilers transferred some or all of it.⁴ Since there are no data on the number and amount of retiring allowances paid each year, it is not possible to determine what proportion was rolled over or what percentage of eligible taxfilers put all or part of such benefits into an RRSP.

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Table 1
RRSP rollovers

	1990	1991	1992	1993	1994
Total					
Number of contributors ('000) *	226	236	255	274	282
Amount contributed (\$ millions)	2,542	3,227	3,333	3,652	3,784
Retiring allowances					
Number of contributors ('000)	79	88	95	107	115
Amount contributed (\$ millions)	1,866	2,506	2,552	2,804	2,917
Average contribution (\$)	23,600	28,560	26,920	26,310	25,450
Pension payments					
Number of contributors ('000)	147	148	160	167	168
Amount contributed (\$ millions)	676	721	781	848	867
Average contribution (\$)	4,610	4,880	4,890	5,080	5,170

Source: RRSP room file

* Includes some double-counting, since a few taxfilers may have rolled over both retiring allowances and pension benefits in the same year.

workers, remained high those years.⁶ Many of these workers may have received early retirement incentives, which they would likely have rolled over to their RRSPs.

More than three-quarters of the \$16.5 billion rolled over from 1990 to 1994 was from retiring allowances, even though each year individuals with pension transfers outnumbered those with retiring allowance deposits. Many taxfilers making pension transfers might have done so every year and would thus be counted repeatedly, whereas those rolling over a retiring allowance would likely have done so only once.

On average, retiring allowance rollovers were much greater than pension income transfers (\$25,450 versus \$5,170 in 1994). Lump sum retiring allowances could be quite substantial, particularly for older employees with lengthy job tenure, while the maximum pension transferable was only \$6,000 per year.

There is no guarantee that retiring allowances rolled over were saved until retirement, since these deposits are not locked in, but are accessible at any time. Some participants may have been unemployed for some time following

their job terminations and others may have been forced into early retirement. They may have drawn on these savings earlier than planned. Nevertheless, the use of this tax-deferral opportunity probably resulted in lower tax charges (see "RRSP withdrawals revisited" in this issue).

Older persons benefited most

In 1994, 56% of persons with retiring allowance rollovers were aged 50 to 64 and they rolled over 64% of the total (Table 2); although 26% were under 45, their share of

the total deposits was only 16%. The benefits they received would likely have been much smaller on average than those of older workers and, even if substantial, the amount eligible for rollover would have been limited by the length of their employment. Likewise, because mainly older taxfilers had pension income, most of those with pension rollovers were older. In 1994, four out of five were 60 and over and their transfers represented 79% of the total.⁷

High income was a factor

Pensioners with higher incomes were most inclined to roll over pension payments. Out of every five persons who used this tax-deferral opportunity in 1994, four had total incomes of \$30,000 or more. In fact, of this group, about 23% reported \$80,000 or more. Nearly all men, they were able to set aside this income in spousal RRSPs and thus reduce their tax obligations while providing retirement savings for their wives. Many of these women were at or near retirement themselves, and since older women generally have fewer income sources than their spouses, these benefits would generate low tax payments.

Similarly, the tax-exempt feature of retiring allowance rollovers tends to benefit high income

Table 2
RRSP rollovers by age groups, 1994

Age	Retiring allowances				Pension payments			
	Number		Amount		Number		Amount	
	'000	%	\$ millions	%	'000	%	\$ millions	%
Total	115	100	2,917	100	168	100	867	100
Under 45	29	26	469	16	1	--	4	--
45-49	11	9	272	9	3	2	13	1
50-54	15	13	431	15	7	4	40	5
55-59	26	22	755	26	24	14	130	15
60-64	24	21	673	23	46	27	242	28
65-69	9	8	251	9	52	31	264	30
70 and over	2	1	66	2	35	21	176	20

Source: RRSP room file

taxfilers. The extent to which income plays a role in the use of this option is difficult to determine from the annual tax data, however. The income reported may be misleading: persons with an early-in-the-year job loss might show lower than normal earnings, whereas the lump sum severance payments will raise total income. In any case, though only 4% of all taxfilers reported total income of \$80,000 or more in 1994, 37% of those with retiring allowance rollovers did so and their deposits accounted for 60% of all rollovers.

Many taxfilers with rollovers also make normal contributions, another indication that this feature is used largely by persons with higher incomes. Previous analysis of the 6.7 million individuals who contributed at least once to RRSPs between 1991 and 1993 showed that just 3% had rollovers only (Frenken, 1995a). Those with high incomes are more likely to receive such income and more apt to maximize their RRSP contribution opportunities.

More men than women

Men were more likely than women not only to roll over pension benefits – 91% of all 1994 participants were men – but also to deposit retiring allowances (61%). This is not surprising, since women tend more to work part time and to receive fewer benefits, including severance pay.

What about the future?

The February 1995 budget eliminated the retiring allowance

rollover opportunity for post-1995 employment. In due course, this change will affect workers retiring or being laid off. For example, someone who started with a particular employer in 1990 and who leaves in 2000 with \$20,000 in severance pay will be able to roll over only \$12,000, the amount related to employment prior to 1996.

More significantly, the chance to roll over pension benefits to spousal RRSPs ended in 1994 (see *Supplementary contributions*). Besides the tax implications for retired men in particular, this change will affect women's RRSP savings. While their RRSP participation has grown dramatically in the last 15 years, it still lags behind men's and their average contribution remains much lower.⁸

Women's RRSP savings, however, have benefited from spousal deposits, both pension transfers and normal contributions. In 1991, the most recent year for which data on the latter are available, 310,000 women received \$1.5 billion in spousal deposits. More than two-fifths of both the number and the amount were the result of pension rollovers.

Because of the recent legislative changes, rollovers will play a diminishing role in the accumulation of RRSP savings. Eventually, all contributions will be subject to taxfilers' deduction limits. Taxfilers with higher incomes (and their spouses, in the case of pensioners) will be most affected. □

Notes

1 Each year, Revenue Canada calculates taxfilers' RRSP room where applicable, based on the previous year's earnings and other factors. For a detailed description see Frenken (1995b).

2 Up to 30% may be withheld by the employer at the time the benefit is paid. The employee may have to pay further taxes when the subsequent tax return is filed.

3 Benefits from the C/QPP and OAS and lump sum payments from RPPs and DPSPs were not eligible. RPP/DPSP lump sums may still be transferred tax free directly by the employer to the employee's RRSP. They continue to be considered pension savings, even though they are part of RRSP assets administered by financial institutions. Since they are not reported on tax returns, their exact volume is not known. However, they are quite significant. In 1993 (the latest year for which these data are available) \$2 billion was withdrawn from trustee pension funds alone because of terminations of employment. A large portion of this would have been locked in, as required by federal-provincial pension legislation. Most of that would have been transferred to locked-in RRSPs or similar vehicles. These amounts are expected to grow considerably. For further information see Statistics Canada (1996).

4 According to the 1994 Revenue Canada taxation statistics sample file, nearly \$24 billion was paid to 2 million individuals that year as "other pensions and superannuation." Besides benefits from RPPs and DPSPs, this amount included registered retirement income payments.

5 Total employment in December 1991 was down 123,000 from a year earlier. Moreover, while some part-time jobs had been created, full-time employment had fallen 150,000 (Cross, 1992).

6 The labour force participation rate for Canadians aged 55 and older continued to drop after 1991 (Akyeampong, 1995).

7 The few who were under 55 were probably receiving disability benefits.

8 In 1994, just 43% of all participants were women and they averaged only \$3,200 in contributions, versus \$4,470 for men.

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The diversity of managers

Katherine Marshall

Who are managers, and what do they do? A tougher question than you might think. Each year *The Financial Post Magazine* profiles 200 leading chief executive officers, dubbed Canada's corporate elite. Such media attention helps spur the popular perception that all managers command high salaries and work long hours. It might be further assumed that managers are male, white and well educated.

But does the stereotypical image fit Statistics Canada's occupational category of managerial, administrative and related occupations, a category defined by the 1980 Standard Occupational Classification (SOC)? The popular image is based on the personal characteristics of a small but high-profile group of managers, whereas the classification system focuses on the actual work of managers, which is wide ranging. Although most jobs held by high-profile managers are coded to the managerial and administrative category, a great many other managerial and administrative jobs fall into this category.

The 1991 Census revealed that 13%, or 1.7 million workers had jobs in the managerial, administrative and related occupations category. After a brief review of occupational classification, this article examines the characteristics of this major group, as well as those of the 26 individual managerial and administrative unit groups, to see how closely the popular perception of managers matches the 1980 SOC.¹ It also considers how a new scheme (the 1991 SOC) will affect the management category.

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Managers are one of 22 major occupational groups

Over the past 25 years Statistics Canada has used two classification systems to code occupational data: the 1971 Occupational Classification Manual (OCM) and the 1980 SOC. Although this paper refers mainly to the 1980 SOC, it will mention a third classification, the 1991 Standard Occupational Classification, which is to replace the 1980 SOC. The structure of both the 1980 (three-tiered) and 1991 (four-tiered) SOC is hierarchical (see *Definitions*).

The 1980 SOC assigns a four-digit code, based on the nature of work performed, to almost 25,000 job titles. The resulting 514 occupational unit groups can then be rolled up to one of 80 minor or 22 major groups. Thus, the 26 managerial and administrative occupational unit groups can be collapsed into 3 minor and one major group.

Wealthy white men? Some, but not all

The sum of the 26 managerial and administrative unit groups, which make up major group 11 of the 1980 SOC, somewhat supports the myth that managers, compared with non-managers, are more likely to be male (63% compared with 54%) and university educated (28% compared with 13%) (Table 1). They are more likely to work long hours (15% compared with 9%) and to earn more money than others: 42% of the managerial and administrative occupations have median earnings of over \$40,000 compared with 12% for all non-managerial occupations. The overall earnings median is \$35,000 for managers, compared with \$21,100. The myth of all-white does not appear to hold true, however, with visible minorities making up 8% of managers and 9% of non-managers.

Table 1
Characteristics of employed * persons, by occupation
(1980 SOC)

	All occupations	Non-managerial occupations	Managerial occupations
		%	
Men	55	54	63
Visible minority	9	9	8
BA or above	15	13	28
Work over 50 hours	10	9	15
Median earnings over \$40,000	13	12	42
		\$	
Median earnings	23,000	21,100	35,000

Sources: Census of Canada, 1991; Standard Occupational Classification, 1980

* Refers to persons aged 15 years and over who did any work at all during census reference week or were absent from their job or business because of illness, vacation or other reasons.

Definitions

Standard Occupational Classification, 1980: An occupational classification system comprising 22 major groups subdivided into 80 minor groups, further subdivided into 514 unit groups. At the unit group level, job titles are classified on the basis of "kind of work" performed, as determined by the tasks, duties and responsibilities of the occupation.

The occupational groupings are structured so that within each major group one or more minor groups are identified, and within each minor group one or more unit groups are noted. A functional relationship is reinforced by means of the coding system. For example,

- 11 Major group – Managerial, administrative and related occupations
- 111 Minor group – Officials and administrators unique to government
- 1111 Unit group – Members of legislative bodies
- 1113 Unit group – Government administrators

Examples of jobs assigned to unit group 1113: city clerk; deputy minister; fire marshal; national parks officer; police commissioner; prison warden; tax collector.

The major group code is repeated at all levels and the minor group is repeated at the unit group level.

Occupational unit group (1980 SOC): A collection of jobs sufficiently similar in their main tasks to be grouped under a common title for classification purposes. Jobs are given a four-digit code that assigns

each to one of 514 occupational unit groups according to "work performed." Occupational unit groups are often referred to as occupations.

Occupational minor group (1980 SOC): Occupational unit groups can be rolled up to a three-digit code placing them in one of 80 minor groups. Each minor group contains occupations with similar work duties.

Occupational major group (1980 SOC): Occupational unit groups can be further rolled up to the two-digit code level and assigned to one of 22 major groups. Major groups contain occupations with broadly related work.

Standard Occupational Classification, 1991: An occupational classification system based on the 1990 National Occupational Classification (1990 NOC). The 1991 SOC has 10 broad occupational categories, 47 major groups, 139 minor groups and 514 unit groups. Except for having 8 fewer unit groups than the NOC, as well as differences in the classification of military personnel, the 1991 SOC's unit, minor and broad occupational groups are virtually identical to the NOC's. The schemes' major group levels differ considerably, however: the NOC differentiates its 26 groups by skill level, and the 1991 SOC distinguishes its 47 groups by further skill type.

The 1991 SOC contains classification codes for both the 1991 SOC and the 1990 NOC at the unit and minor group levels. These levels carry a two-part number that can place them in either classification. As with the 1980 SOC, a functional relationship is reinforced by means of the coding system.

For example,

- A Broad occupational category – Management occupations
- A0 Major group – Senior management occupations
- A01.001 Minor group – Legislators and senior management
- A011.0011 Unit group – Legislators
- A012.0012 Unit group – Senior government managers and officials

The three- and four-digit numbers following the period in the unit and minor groups are the corresponding NOC groups.

Managerial, administrative and related occupations (1980 SOC): This major group includes occupations concerned with managerial and administrative activities such as planning, organizing, co-ordinating, directing, controlling and staffing, and formulating, implementing or enforcing policy in government, industry and other organizations (Statistics Canada, 1981:47).

Visible minorities: Refers to non-Aboriginal persons who are non-Caucasian or non-white. Because there was no question on race or colour on the 1991 Census, data on visible minorities were derived from responses to the ethnic origin question in conjunction with other ethno-cultural information, such as language, place of birth and religion.

Median earnings: With earnings ranked from lowest to highest, the median is the middle value; the median thus divides the earnings values in half.

Managerial unit groups wide ranging

The preceding figures are averages of the 26 managerial and administrative occupational unit groups. Many of the unit group occupations fit the mostly male, highly educated, highly paid and long-

hours image of managers. In natural science and engineering, for example, 86% of managers are men, 63% have at least one degree, 11% work over 50 hours a week and 18% earn \$80,000 or over. Conversely, many unit groups fall well below the overall averages for both managerial and non-manage-

rial occupations. Post office managers are an example, with only 36% of the employed being men, 5% having a university degree, 7% working long hours and 2% earning \$80,000 or over. The percentage representation of men in any single managerial or administrative occupation ranges from 35% in

medicine and health to 95% in construction operations (Chart and Appendix). The percentage of workers with a university degree ranges from 5% of post office managers and farm managers to 79% of education administrators, with considerable variation in between. Similarly, there is substantial dispersion around the overall median earnings, from \$14,800 for farm managers to \$57,600 for natural science and engineering managers. There is somewhat less dispersion around the overall average (15%) for managers who work over 50 hours a week, with many managerial occupations falling under the non-managerial average of 9%. The high incidence of self-employment makes farm management an obvious outlier, with 51% of farm managers working over 50 hours a week.

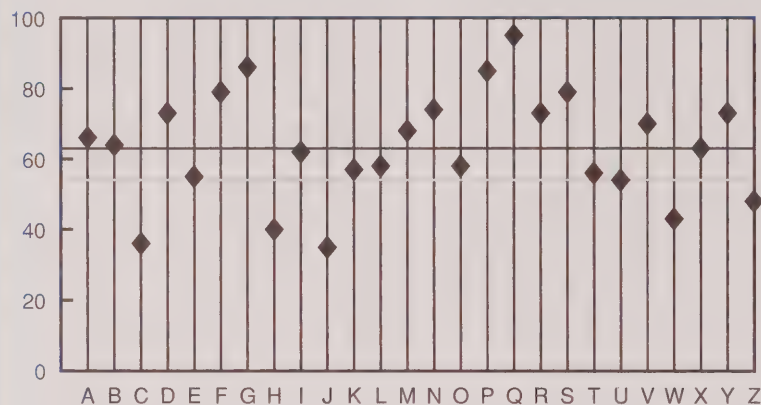
Variation within unit groups as well

Diversity exists not only among the 26 managerial and administrative occupational unit groups, but, as expected, within each individual occupational unit group as well. All four-digit unit groups are, by definition, a collection of jobs linked by similarity of work performed. "This approach to the grouping of occupations ensures a certain homogeneity within groups and permits a distinction between groups" (Statistics Canada 1993:iii). Although the four-digit groups should offer the most uniformity, variations persist because of inherent differences in worker and job characteristics – differences for which the SOC does not control. For example, two people who perform identical work duties may differ in age, education and union status, factors that can affect characteristics such as hours of work or rates of pay. In other words, the 1980 SOC codes a job solely on the nature of the work

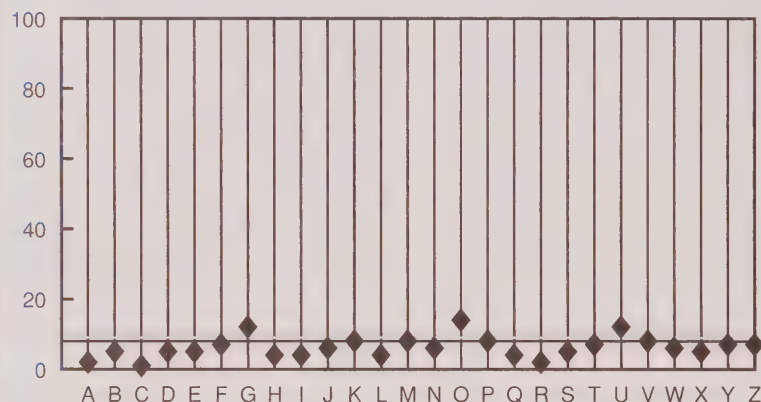
Chart

Managerial occupations show substantial variations ...

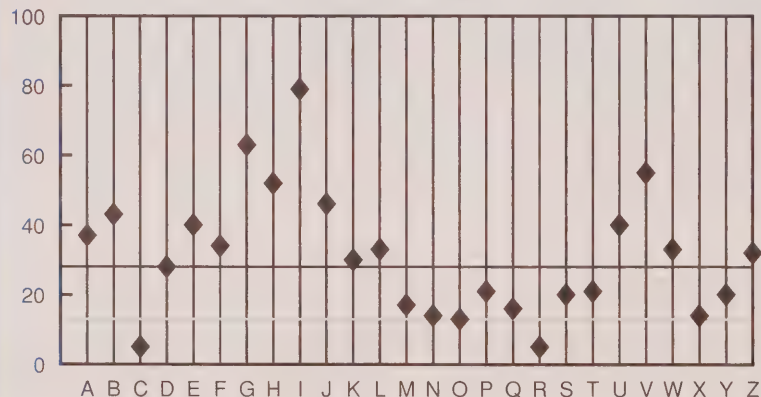
Men (%)



Visible minority (%)

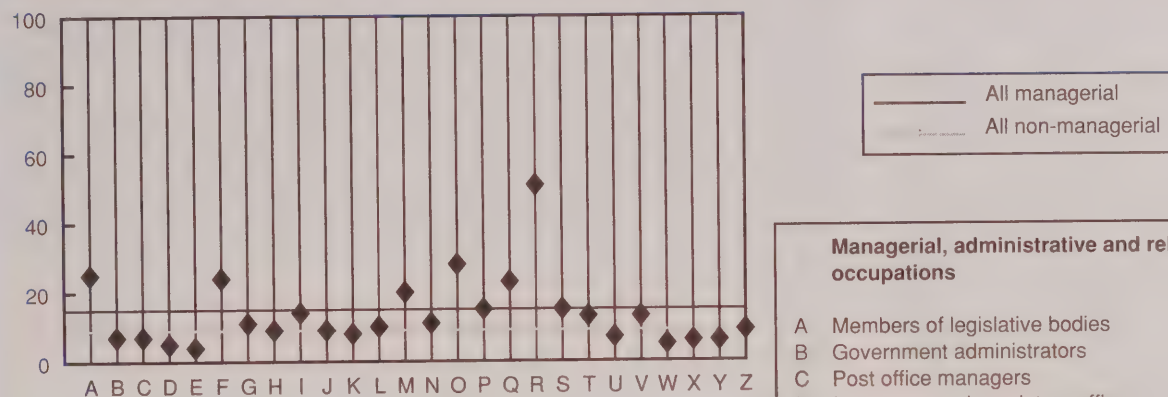


BA or above (%)

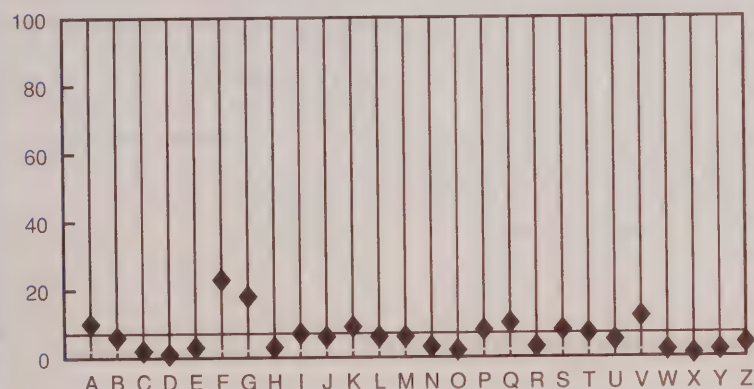


and many do not fit the popular image.

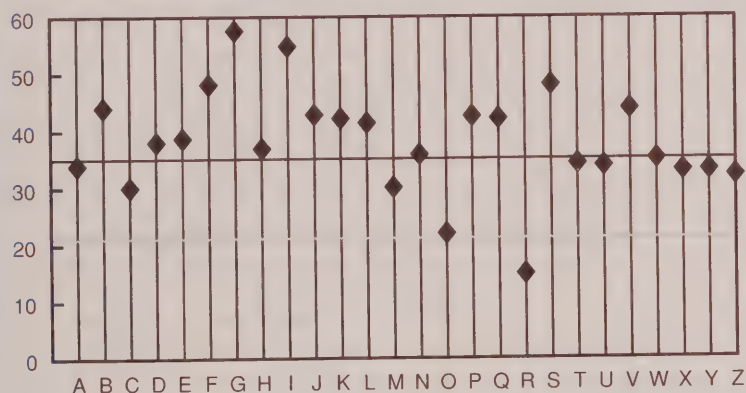
Work over 50 hours (%)



Earn \$80,000 or over (%)



Median earnings (\$'000)



Managerial, administrative and related occupations

- A Members of legislative bodies
- B Government administrators
- C Post office managers
- D Inspectors and regulatory officers
- E Government officials and administrators n.e.c. *
- F General managers and other senior officials
- G Natural science and engineering managers
- H Social science and related fields managers
- I Administrators in teaching and related fields
- J Administrators in medicine and health
- K Financial managers
- L Personnel and industrial relations managers
- M Sales and advertising managers
- N Purchasing managers
- O Services managers
- P Production managers
- Q Construction operations managers
- R Farm managers
- S Transport and communication operations managers
- T Other managers and administrators n.e.c. *
- U Accountants, auditors and other financial officers
- V Organization and methods analysts
- W Personnel and related officers
- X Purchasing officers and buyers, except wholesale and retail trade
- Y Inspectors and regulatory officers n.e.c. *
- Z Occupations related to management and administration n.e.c. *

Note: The alphabetical letters are used here only as a legend to identify the 1980 SOC categories. They are not part of the classification scheme itself.

* Not elsewhere classified.

Sources: Census of Canada, 1991; Standard Occupational Classification, 1980

performed, rather than on the characteristics of the job itself or the person doing the job.

Characteristics of the workers and occupations vary because of wide ranging and sometimes nebulous work duties, which include planning, organizing, co-ordinating, directing, controlling and staffing, and formulating, implementing or enforcing policy.² However, the classification system accounts for neither the degree of responsibility, control or influence associated with the job nor the size of the establishment or division managed. Therefore, in accordance with the 1980 SOC, individual managerial and administrative unit groups, such as government administrators, include both high- and low-level positions (federal deputy ministers and village clerks, for example).

This diversity of occupation will be reduced under the 1991 classification system, which consolidates 43 individual occupational unit groups into a broad category (management occupations).

1991 SOC helps streamline "managers"

The 1991 SOC will be used to classify all standard published census occupational data starting with the 1996 Census.³ The Labour Force Survey will adopt the system in 1997. The new scheme, which is based on the 1990 National Occupational Classification (see 1990 NOC), differs substantially in structure and content from earlier systems. In fact, very few of its unit groups have a one-to-one correspondence with those in the 1980 SOC.

The new classification affects the "managers" category in two ways. The number of individual managerial and administrative unit groups increases from 26 to 43. For example, the natural science and engineering managers group of

1990 NOC

The 1990 National Occupational Classification system was developed by Human Resources and Development Canada and uses 10 broad occupational categories subdivided into 26 major groups, 139 minor groups and 522 unit groups. Each occupational category or group is assigned a unique one-digit (broad category), two-digit (major group), three-digit (minor group) or four-digit (unit group) numerical code. The codes for broad occupational categories are based on skill type. The second digit of the major, minor or unit group

the 1980 classification is now two groups: engineering, science and architecture managers, and information systems and data processing managers. The former service managers group has grown into five manager groups: restaurant and food service; accommodation service; other business services; social, community and correctional services and other services. Also, the 1991 SOC's definition of managers excludes some government, administrative and regulatory occupations, as well as all non-managerial professional occupations in finance and human resources, and farm managers. So although the number of unit groups increases with the 1991 SOC, the overall count for managers decreases, because the new system uses a more stringent definition of manager. For example, if the 1991 Census data are coded according to the 1991 SOC, only 10%, or 1.3 million workers have managerial jobs (Table 2), compared with 13%, or 1.7 million under the 1980 SOC (Appendix). Most of the roughly 340,000 workers no longer coded as managers would have come from the former minor group, "occupations related to management and administration," and would now be coded to the broad category of business, finance and administrative occupations.

identifies the skill level of the occupation. Skill level, which is divided into four categories, is a distinctive feature of the 1990 NOC and is defined as the amount and type of education, training and experience required to enter a job.

Management occupations are the one exception to this coding system. Management occupations are not assigned a skill level because of the wide range of education or training requirements for management.

Summary

Occupational data from the census offers invaluable benchmark information on over 500 detailed occupations. It is important, however, to understand the coding procedures in order to interpret the data correctly. Managerial, administrative and related occupations is one group that has been open to misinterpretation.

The popular image of managers, that of well-educated, highly paid men working in high-powered chief executive jobs, describes only a few occupations in the 1980 SOC managerial group. That system, which classifies managers according to work duties only, categorizes a variety of middle management, administrative and regulatory occupations.

More than one in 10 jobs are coded to the managerial category, making it a substantial and important group. However, because of the diversity of the category, the 1991 Standard Occupational Classification increases the number of managerial occupations and defines each occupation more narrowly. These changes will likely increase the similarity of characteristics for people in these occupations. However, the fundamental work duties of management remain sweeping and do not account for

Table 2
Employed,* by occupation (1991 SOC)

Non-management occupations	11,679,200
Management occupations	1,326,300
Senior management occupations	135,900
Legislators	4,700
Senior government managers and officials	19,700
Senior managers – financial, communications carriers and other business services	24,200
Senior managers – health, education, social and community services and membership organizations	8,900
Senior managers – trade, broadcasting and other services, n.e.c. **	34,000
Senior managers – goods production, utilities, transportation and construction	44,300
Specialist managers	297,100
Financial managers	60,900
Human resources managers	27,900
Purchasing managers	9,500
Other administrative services managers	24,200
Engineering, science and architecture managers	23,500
Information systems and data processing managers	25,800
Sales, marketing and advertising managers	91,400
Facility operation and maintenance managers	34,000
Managers in retail trade, food and accommodation services	449,000
Retail trade managers	329,500
Restaurant and food service managers	95,900
Accommodation service managers	23,700
Other managers, n.e.c. **	444,400
Insurance, real estate and financial brokerage managers	27,900
Banking, credit and other investment managers	51,500
Other business services managers	11,100
Telecommunication carriers managers	12,300
Postal and courier services managers	4,200
Managers in health care	18,300
Administrators in postsecondary education and vocational training	7,200
School principals and administrators of elementary and secondary education	28,900
Managers in social, community and correctional services	15,400
Government managers in health and social policy development and program administration	5,100
Government managers in economic analysis, policy development and program administration	4,100
Government managers in education policy development and program administration	1,700
Other managers in public administration	4,500
Library, archive, museum and art gallery managers	3,600
Managers in publishing, motion pictures, broadcasting, and performing arts	11,500
Recreation and sport program and service directors	7,800
Commissioned police officers	2,900
Fire chiefs and senior fire-fighting officers	1,400
Commissioned officers, armed forces	18,400
Other service managers	34,900
Construction managers	43,700
Residential home builders and renovators	25,600
Transportation managers	19,100
Primary production managers (except agriculture)	9,800
Manufacturing managers	64,100
Utilities managers	9,600

Sources: Census of Canada, 1991; Standard Occupational Classification, 1991

* Refers to persons aged 15 years and over who did any work at all during census reference week or were absent from their job or business because of illness, vacation or other reasons.

** Not elsewhere classified.

level of responsibility. The broad 1991 SOC "management occupations" category will, as did the 1980 SOC, include both high- and low-level managers with heterogeneous characteristics. □

Notes

1. Although a number of ongoing sample surveys at Statistics Canada use the 1980 SOC to code occupational data (for example, Labour Force Survey, Survey of Labour and Income Dynamics and the General Social Survey), and can offer more recent data on managers, only the census allows a reliable examination of occupations coded to the four-digit level. Census data can help with the analysis of occupational data from these other sources. For example, because of sample size, most surveys code occupational data to the managerial minor group (three-digit) or major group (two-digit); therefore, it is important to understand the true composition of these collapsed categories.

2. It is also important to note that job descriptions are self-enumerated by respondents. Coders have found that the management category often elicits terse responses. For example, a respondent might fill in "managing" as his/her most important work duties with no further detail, making appropriate coding much more difficult.

3. Each record of the 1991 Census was coded to both the 1980 and 1991 versions of the SOC. However, for all standard 1991 Census publications and other products, only the 1980 version was used. The 1991 SOC-based estimates are available on request.

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Appendix

Characteristics of employed * persons, by managerial occupation (1980 SOC)

	Total	Men	Visible min- ority	BA or above	Work over 50 hours	Earn \$80,000 or over	Median earnings
				%			\$
Non-managerial occupations	11,338,200	54	9	13	9	2	21,100
Managerial, administrative and related occupations	1,667,300**	63	8	28	15	7	35,000
Government officials and administrators	98,900	65	5	34	7	4	39,200
Members of legislative bodies	4,400	66	2	37	25	10	33,900
Government administrators	37,300	64	5	43	7	6	44,000
Post office managers	4,500	36	1	5	7	2	30,000
Inspectors and regulatory officers	34,800	73	5	28	5	1	38,000
Government officials and administrators n.e.c. †	14,400	55	5	40	4	3	38,700
Other managers and administrators	1,161,500	66	8	25	19	8	35,300
General managers and other senior officials	152,400	79	7	34	24	23	48,100
Natural science and engineering managers	15,900	86	12	63	11	18	57,600
Social science and related fields managers	9,400	40	4	52	9	3	36,900
Administrators in teaching and related fields	42,900	62	4	79	14	7	54,900
Administrators in medicine and health	22,100	35	6	46	9	6	42,800
Financial managers	89,700	57	8	30	8	9	42,200
Personnel and industrial relations managers	42,400	58	4	33	10	6	41,400
Sales and advertising managers	243,500	68	8	17	20	6	30,100
Purchasing managers	16,800	74	6	14	11	3	35,800
Services managers	83,200	58	14	13	28	2	21,900
Production managers	65,100	85	8	21	15	8	42,500
Construction operations managers	30,100	95	4	16	23	10	42,200
Farm managers	69,800	73	2	5	51	3	14,800
Transport and communications operations managers	19,800	79	5	20	15	8	48,100
Other managers and administrators n.e.c. †	224,100	56	7	21	13	7	34,200
Occupations related to management and administration	406,900	53	10	36	7	5	33,800
Accountants, auditors and other financial officers	219,600	54	12	40	7	5	33,800
Organization and methods analysts	15,900	70	8	55	13	12	43,800
Personnel and related officers	41,700	43	6	33	5	2	35,000
Purchasing officers and buyers, except wholesale and retail trade	15,700	63	5	14	6	1	33,000
Inspectors and regulatory officers n.e.c. †	10,200	73	7	20	6	2	33,000
Occupations related to management and administration n.e.c. †	90,900	48	7	32	9	4	32,100
<i>Minimum and maximum distribution figures for each characteristic</i>	<i>Low</i>	<i>35</i>	<i>1</i>	<i>5</i>	<i>4</i>	<i>1</i>	<i>14,800</i>
	<i>High</i>	<i>95</i>	<i>14</i>	<i>79</i>	<i>51</i>	<i>23</i>	<i>57,600</i>

Sources: Census of Canada, 1991; Standard Occupational Classification, 1980

* Refers to persons aged 15 years and over who did any work at all during census reference week or were absent from their job or business because of illness, vacation or other reasons.

** This figure includes 50,700 imputed records not shown in the individual occupational unit group categories, but reflected in the minor group subtotals (boldface).

† Not elsewhere classified.

Changes in job tenure

Andrew Heisz *

It is widely thought that the tradition of steady, long-term employment is becoming less of a reality for Canadian workers. Many labour analysts believe that employers are tailoring job spells to respond to fluctuations in demand, with the result that offers of long-term employment are on the decline. They argue that firms are increasingly using a core of full-time, skilled employees and hiring temporary workers when the need arises.

There are other reasons to believe that job instability may be increasing. These include the rise in non-standard work arrangements like part-time, temporary and contract work, and the recently documented rise in earnings inequality. To the extent that these changes are related to job stability, changes in job length would also be expected. Examining job tenure is important because workers employed for the long term have more chance to build up skills, earn a high wage and gain access to career advancement opportunities. Workers employed for the short term are exposed to more spells of unemployment, have more difficulty accumulating a pension, and have more need for mid-career retraining.

Is job instability on the rise? Are short-term jobs becoming more common? Are long-term or "lifetime" jobs becoming less common? If so, for whom? This study addresses these questions by presenting estimates of the average

About the study

Information on the duration of jobs is drawn from the monthly Labour Force Survey (LFS) for the period 1976 to 1994. In this survey, job tenure refers to the number of consecutive months a person has worked for his or her current employer.¹ These data measure "interrupted" job lengths since only the length of time spent in a job up to the survey date is captured. A job measured in this way may end the next day, or it may last many more years.

The methodology used in this study allows the calculation of monthly estimates of the average complete length of a new job, as well as the distribution of complete job lengths, from information on interrupted tenure. These are point-in-time estimates of what the cohort of job starters can expect to experience, assuming that current economic

length of a new job started over the period 1981 to 1994 (see *About the study*). To the extent that the duration of the average job started over this period has increased or decreased, it may be said that there is more or less job stability. Since it is also possible that the changes in short- and long-term jobs could be offsetting, leaving the average job length stable, the distribution of job durations from 1981 to 1994 is also examined.

Changes in job stability

The average duration of a job started over this period was 3.7 years. Although the average job length follows a cyclical pattern, varying from a low of 3.0 years in 1991 to a high of 4.9 years in 1994, it has shown no significant trend (Chart A). The average new job lasted 3.8 years between 1981 and 1985, 3.4 years between 1986 and

conditions are maintained through the length of this employment. They are not meant to apply to jobs already in progress at the beginning of each month.

Estimates of complete new job lengths computed in this study have the advantage of avoiding several biases commonly associated with alternative measures of job tenure. Readers should refer to Heisz (1996), a more technical version of this paper, for a discussion of these biases and other details regarding the methodology.²

The sample used for this study includes all employed full- and part-time paid workers, but excludes the self-employed, students and unpaid family workers. It represents about 85% of the employed labour force in 1994.

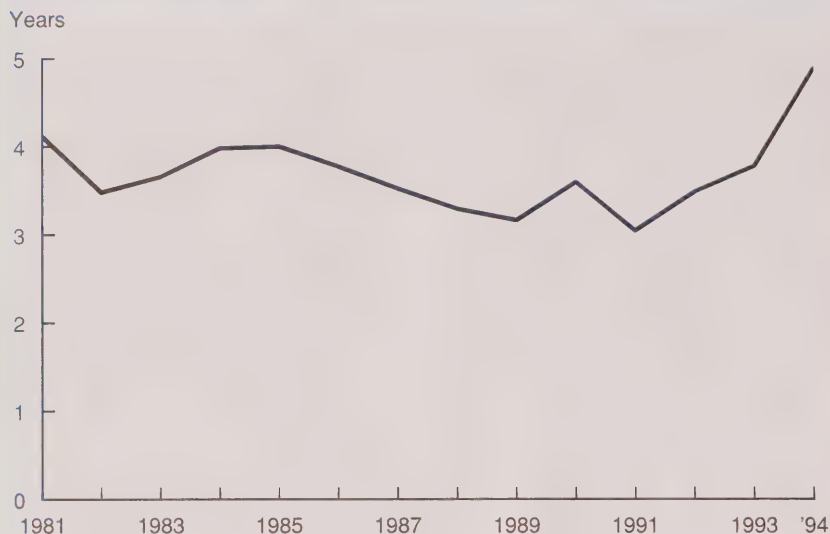
1990, and 3.8 years between 1991 and 1994.

Important changes in the distribution of completed job lengths over this period are masked by the stability in the average job length (Chart B). There was a substantial shift from jobs that lasted between one and 5 years to those that lasted one year or less. Between the 1981-85 and 1991-94 periods, the proportion of jobs that lasted between one and 5 years dropped from 21% to 16%. At the same time, the figure for jobs lasting 12 months or less increased from 59% to 64%. The fraction of jobs that lasted between 5 and 20 years (14%) and more than 20 years (6%) remained relatively unchanged between the periods. This increase in the proportion of short-term jobs combined with an unchanging proportion of long-term jobs represents a polarization of jobs.

* Adapted from an article in Canadian Economic Observer (Statistics Canada, Catalogue no. 11-010-XPB) 9, no. 1 (January 1996): 3.1-3.9. Andrew Heisz is with the Business and Labour Market Analysis Division. He can be reached at (613) 951-3748.

Chart A

The average new job has lasted less than four years.



Source: Labour Force Survey

How is it that the proportion of long-term jobs remained stable even though the proportion of short-term jobs increased? The answer is that once a job passed the 12-month milestone, it had a better chance of becoming a long-term job at the end of the period than it did at the beginning (Chart C).

While the proportion of new jobs that lasted more than one year declined over the period, the proportion of year-old jobs that lasted longer than 5 years increased from an average of 48% between 1981 and 1985 to an average of 54% between 1991 and 1994. The combined result is that workers with more than one year of job seniority have been enjoying increasing security, while others have found it more difficult to join their ranks.

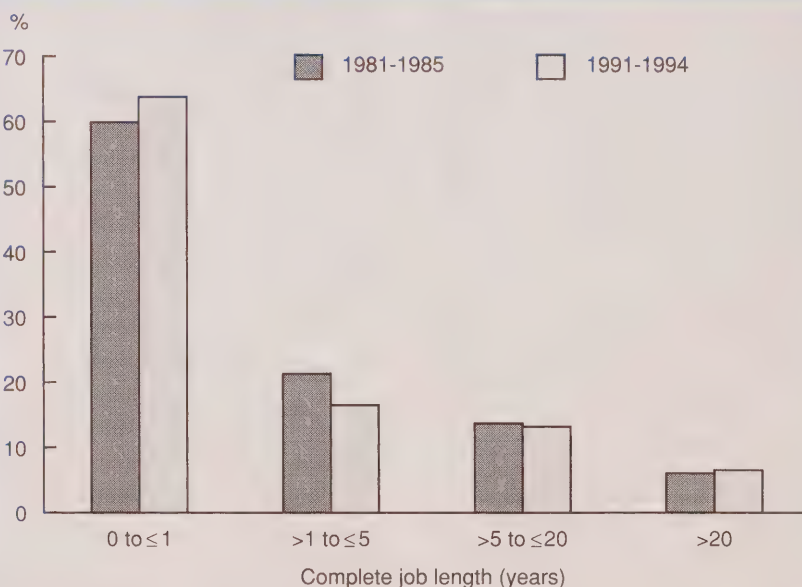
The polarization of jobs: A closer look

This section investigates this polarization further to see whether the pattern occurs for different groups in the economy. Polarization of job tenures could occur if some demographic groups were enjoying lengthening tenures while others were not. Alternatively, polarization could occur within all groups, suggesting that an economy-wide change is taking place.

Investigation reveals a pattern of polarization that persisted among all demographic sub-groups studied (Table 1). The proportion of new jobs lasting longer than one year declined for virtually all groups. It dropped most for the following: workers who were aged 45 and over when their jobs began, workers in Atlantic Canada and Quebec, and workers in the community services and manufacturing

Chart B

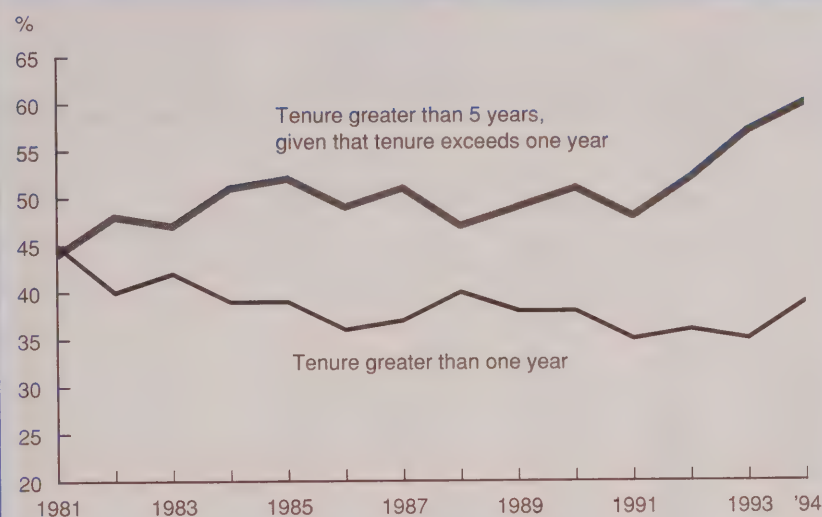
An increasing proportion of completed jobs are short-term.



Source: Labour Force Survey

Chart C

Workers with more than one year of seniority are enjoying an increasing probability of exceeding 5 years.



Source: Labour Force Survey

in the proportion of new jobs lasting more than 12 months that account for much of the decline in average job length for older workers. The corresponding drops for other age groups were much more muted, with the result that stability for job starters dropped as the age at which the worker began the job increased.

Similar trends underlie the decline in job lengths in Atlantic Canada. In this region workers with more seniority have not been at higher risk of having their job come to an end. In fact, the proportion of 5 year-old jobs that went on to last more than 20 years rose slightly from 30% to 33% over the period. The declining average job length has been caused by a large drop in the proportion of jobs that last longer than one year. This proportion fell from 30% between 1981 and 1985 to 21% between 1991 and 1994.

Focus on long-term jobs

An often heard argument is that because of structural changes in the economy, older workers and workers in declining industries are more at risk of losing their jobs. This study sheds some light on this question by asking what proportion of jobs that have lasted 10 or 15 years are expected to continue for at least 5 more years (Table 2). Changes in these proportions over time reveal to what extent the stability of long-term jobs has changed. These changes may not have been observed up to this point in the analysis because only a minority of new jobs reach 10 or 15 years in length.

This study shows that for each age group, the probability that a 10 year-old job would last an additional 5 years was relatively steady over the period. For example, for both the 1981-85 and 1991-94 periods, 73% of 10 year-old jobs started by workers when they were between the ages of 25 and 34 lasted an additional 5 years. The

industries. At the same time, the proportion of one year-old jobs that lasted more than 5 years rose for all groups. It increased most for the oldest and youngest age groups, for workers in Quebec and Western Canada, and for workers in the community services and manufacturing industries. This pattern of change suggests that it is not particular groups that have been responsible for the aggregate changes in job lengths; rather, the changes have been happening within each group.

Despite these changes in the distribution of job tenure, the average job duration for most groups remained steady, with some notable exceptions. First, workers aged 45 to 54 and 55 to 64 when they started their jobs experienced significantly shorter job tenures at the end of the period than at the beginning. For both of these groups, the average job length fell by 0.8 years, or 9.5 months, between 1981 and 1994. Second, workers in the Atlantic provinces experienced a decline in

the average job length of 0.5 years. Third, workers in the business and personal services industry held on to their jobs longer at the end of the period than at the beginning (an increase of 0.7 years).

The decline in average job tenure among older people starting in a new job raises the concern that these workers have experienced particular difficulty finding stable employment. One reason for this may be that older displaced workers have been left with skills not in demand and with few employment prospects. Another is they have been retiring earlier. The proportion of job starters who achieve stable employment has been declining at a much faster rate for older workers than it has for younger workers. Between 1981 and 1985, 41% of jobs started by workers aged 45 to 54 and 37% by workers aged 55 to 64 lasted more than 12 months. These percentages dropped by 10 and 16 percentage points, respectively, for the 1991-94 period. It is these large changes

Table 1
Job tenure by sex, age, region, industry and education

	Complete job length		The proportion of new jobs lasting longer than...					
	Average	Change *	12 months		5 years, given they have lasted longer than one year		20 years, given they have lasted longer than 5 years **	
	1981-1994	1981-1994**	1981-1985	1991-1994	1981-1985	1991-1994	1981-1985	1991-1994
	years				%			
Total	3.7	-	41.0	36.2	48.3	54.2	30.7	32.1
Men	3.6	0.1	38.2	34.2	49.6	54.5	31.1	32.4
Women	3.8	-0.1	44.6	38.6	47.2	54.0	28.8	31.1
Age when job began:								
15-24	3.7	0.4	39.4	37.2	44.1	51.8	41.7	39.1
25-34	4.3	-0.2	43.2	38.6	49.4	53.4	39.1	41.2
35-44	4.0	-0.3	43.5	38.3	55.4	57.6	25.9	22.3
45-54	3.2	-0.8	40.9	31.3	56.6	59.6	4.2	5.1
55-64	1.9	-0.8	36.8	21.0	38.5	45.6	1.1	2.1
Atlantic Canada	2.6	-0.5	29.8	21.2	49.2	53.3	30.0	32.9
Quebec	3.6	-	38.4	31.8	50.4	58.2	29.9	31.7
Ontario	4.5	0.2	46.9	45.0	52.0	54.3	32.4	32.3
Western Canada	3.4	0.2	40.6	36.8	42.8	51.6	28.6	32.7
Manufacturing	4.0	0.1	43.8	36.3	48.6	60.1	29.9	24.3
Trade	3.8	-0.4	49.6	45.7	44.0	47.2	23.8	17.6
Community services	5.4	-0.7	49.7	39.1	57.1	69.7	39.8	47.3
Business and personal services	2.7	0.7	38.7	38.6	35.1	41.4	16.1	24.8
No postsecondary	2.9 †	...	35.8	23.3	44.6	45.5	...	...
Some postsecondary	5.7 †	...	52.9	41.3	54.8	56.3	...	...

Source: Labour Force Survey

Note: Estimates for individual provinces and industries are not available because of small sample size.

* Change implied from results of regression of 168 monthly average job length values on the unemployment rate, monthly dummy variables and a time trend.

** A change in LFS definitions in 1990 prohibits calculation of these statistics by educational attainment.

† 1981-1989 only.

probability that a job that had lasted for 15 years would continue for at least 5 more declined significantly only for workers who started their jobs when they were aged 35 to 44. Jobs for these workers had a 62% probability of lasting another 5 years between 1981 and 1985 and a 51% chance of lasting 5 more years between 1991 and 1994. Long-term jobs for these workers have become less stable, but some of this change may be explained by an increased prevalence of early retirement.

Long-term jobs held by workers in certain industries have also become less stable, but this is offset by the situation in other industries. For example, the probability that a 10 year-old job in the manufacturing or trade industries would reach 15 years declined by 4 and 10 percentage points, respectively. At the same time, the probability that a 10 year-old job in the community services or business and personal services industries would last another 5 years rose by 3 and 9 percentage points, respectively.

Conclusion

From 1981 to 1994, new jobs became more polarized into short- and long-term jobs. Although the average complete duration of jobs showed no significant trend over the period, the distribution of complete job lengths shifted from medium- to short-term jobs. This means that new job holders experienced more instability at the end of the period than at the beginning. However, once the 12-month tenure milestone was passed, workers

Table 2
Proportion of jobs lasting an additional 5 years, by selected age and industry

	Current length of job			
	10 years		15 years	
	1981-1985	1991-1994	1981-1985	1991-1994
	%			
Total	66.0	66.2	76.2	76.5
Age when job began:				
15-24	71.9	70.1	91.1	91.0
25-34	72.9	73.0	84.0	82.1
35-44	67.4	62.8	61.8	51.4
45-54	42.4	42.3	--	--
Manufacturing	65.4	61.3	74.3	70.6
Trade	61.4	51.3	70.2	63.6
Community services	74.8	77.6	75.6	80.5
Business and personal services	47.7	56.8	76.3	78.4

Source: Labour Force Survey

enjoyed greater job stability, with the result that the proportion of long-term jobs remained unchanged. This result persisted across all sub-groups, except for older workers and workers in Atlantic Canada, where the shift to short-term jobs caused shorter average job lengths.

The degree and persistence of job polarization into long- and short-term jobs point to a significant trend. The presence of this change within all demographic and industrial groups suggests that it has not been driven by changes particular to any group or sector of

the economy. Rather, an economy-wide explanation may be required. Increasingly, firms seem to be using a core of long-term employees, leaving more Canadians with less stable jobs.³ □

Notes

1 An employee may have worked in several different occupations with the same employer and still be considered to have continuous tenure. If a worker has been with the same employer over different periods of time, then the tenure measures the most recent period of uninterrupted work. See Statistics Canada (1992) for more details.

2 This methodology was originally developed for the analysis of unemployment spells (Sider, 1985; Corak, 1993, and Corak and Heisz, 1996).

3 For another perspective on job polarization, see "Key labour and income facts" in this issue.

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Canada's unemployment mosaic in the 1990s	Spring 1996
The many faces of unemployment	Spring 1996
Who gets UI?	Summer 1994
A note on the self-initiated training of job-losers	Spring 1994
Alternative measures of unemployment	Winter 1992
A note on Canadian unemployment since 1921	Autumn 1992

Discouraged workers – where have they gone?	Autumn 1992
Unemployment – occupation makes a difference	Winter 1991
Then and now: The changing face of unemployment	Spring 1991
Shifting patterns of unemployment distribution since the 1960s	Autumn 1990
Time lost: An alternative view of unemployment	Spring 1990
Unemployment: A tale of two sources	Winter 1989
"Discouraged workers"	Autumn 1989
Canada's unemployment mosaic	Summer 1989

UNIONIZATION

Unionized workers	Spring 1996
A note on wage trends among unionized workers	Autumn 1993
Are jobs in large firms better jobs?	Autumn 1991
Working for minimum wage	Winter 1989
Unionization and women in the service sector	Autumn 1989

WOMEN

Women entrepreneurs	Spring 1996
Women as main wage-earners	Winter 1995
Adult women's participation rate at a standstill	Autumn 1995
Women in non-traditional occupations	Autumn 1995
Baby boom women	Winter 1994
Work-related sexual harassment	Winter 1994
Declining female labour force participation	Summer 1994
Left behind: Lone mothers in the labour market	Summer 1994
Balancing work and family responsibilities	Spring 1994
Defining and measuring employment equity	Winter 1993
Employed parents and the division of housework	Autumn 1993
Female lone parents in the labour market	Spring 1993
Women in academia – a growing minority	Spring 1993
A degree of change	Winter 1992
Alimony and child support	Summer 1992
Absences from work revisited	Spring 1992
Women and RRSPs	Winter 1991
Women approaching retirement	Autumn 1991
Who's looking after the kids? Child care arrangements of working mothers	Summer 1991
Women's earnings and family incomes	Summer 1991
Male-female earnings gap among recent university graduates	Summer 1990
Trading places: Men and women in non-traditional occupations, 1971-86	Summer 1990
Wives as primary breadwinners	Spring 1990
Unionization and women in the service sector	Autumn 1989
On maternity leave	Summer 1989

WORK ARRANGEMENTS

Women entrepreneurs	Spring 1996
Non-standard work on the rise	Winter 1995
Full-year employment across the country	Autumn 1995
Families and moonlighting	Summer 1995
Hours of working couples	Summer 1995
Work experience	Summer 1995
Ever more moonlighters	Autumn 1994
Involuntary part-timers	Autumn 1994
Jobs! Jobs! Jobs!	Autumn 1994
The hours people work	Autumn 1994
Voluntary part-time workers	Autumn 1994
Weekend workers	Summer 1994
Working "9 to 5"	Summer 1994
Balancing work and family responsibilities	Spring 1994
Flexitime work arrangements	Autumn 1993
Paid overtime	Autumn 1993
Work arrangements of Canadians – an overview	Autumn 1993
Working shift	Spring 1993
Hard at work	Spring 1992
A note on self-employment	Winter 1991
A note on the Work Sharing Program	Winter 1991
Non-standard work arrangements	Winter 1991
Moonlighters	Winter 1989
The changing face of temporary help	Summer 1989

YOUTHS

Labour market outcomes for university co-op graduates	Autumn 1995
Youths – waiting it out	Spring 1994
Labour market outcomes for high school leavers	Winter 1993
School, work and dropping out	Summer 1993
A degree of change	Winter 1992
Juggling school and work	Spring 1992
Apprentices: Graduate and drop-out labour market performances	Spring 1991
Working for minimum wage	Winter 1989
Youth for hire	Summer 1989

MISCELLANEOUS

Getting there	Summer 1994
The gift of time	Summer 1990

What's new?

■ UPCOMING RELEASE

■ *Survey of Consumer Finances – latest family income study*

With the weak pace of recovery in the domestic economy, is family income holding its own? Is low income becoming more or less prevalent? These and other questions are answered by *Income Distributions by Size in Canada, 1995* (Catalogue no. 13-207-XPB). This publication provides the latest estimates and historical time series of family and individual incomes and low income rates by province, sex, family type and other characteristics. Data analysis, definitions, data quality measures, survey questionnaires and a bibliography of related publications are also included.

Data for this publication are from the Survey of Consumer Finances, an annual supplement to the Labour Force Survey. For further information, contact Réjean Lasnier at (613) 951-5266; Internet: income@statcan.ca. □

■ JUST RELEASED

■ *Labour Division updates UI data*

Annual Unemployment Insurance Statistics is now updated and available in electronic format. This easy-to-load diskette is produced using Adobe Acrobat software. Clients can browse and print information as well as export data into the spreadsheet of their choice. The new diskette is specifically designed to simplify access to the data, while enabling clients to forecast and plan with greater confidence.

It contains concise, comprehensive articles that highlight the new Employment Insurance Program and compare it with the old Unemployment Insurance Program. It offers a historical overview of the whole program, along with detailed monthly and/or annual historical data tables on beneficiaries, weeks paid, benefits paid and average weekly payments, among others. There are 21 tables for various demographic and geographic levels.

For further information on *Annual Unemployment Insurance Statistics, 1995* (Catalogue no. 73F0003XDE, \$75), or to order this new electronic

product, contact the Client Services Section, Labour Division (613) 951-4090; fax: (613) 951-4087; Internet: labour@statcan.ca. □

■ *General Social Survey looks at retirement*

Never has the subject of retirement been more important than now. By the year 2025, one person in five will be 65 or older. This raises many questions about retirement in Canada: the timing, the transition process, and the financial status of retirees. *Canada's Changing Retirement Patterns: Findings from the General Social Survey* (Catalogue no. 89-546-XPE) presents retired Canadians' experiences and perceptions.

The publication is based largely on findings from the 1994 GSS on Education, Work and Retirement. It looks at age of retirement and the main factors likely to explain its diversity. Also explored are the return to work after initial retirement and retirees' perception of their current financial situation.

For further information, contact Pierre Turcotte at (613) 951-0878; Internet: turcpie@statcan.ca, or Manon Monette at moneman@statcan.ca. □

■ *Family and Community Support Systems provides work data*

Many important issues of public concern require data that integrate information about time spent on both paid work and unpaid work of economic value. Such data are available in Statistics Canada's Total Work Accounts System (TWAS), which is based on time-use diaries collected in the General Social Survey.

The TWAS is a network comprising a microdata file, concepts, linked tables, and statistical indicators that provides information pertinent to major issues of public concern and policy debate. In addition, the microdata file and detailed tables provide bases for analysis and modelling of the effects of social and economic developments on the availability and use of paid and unpaid work outputs. Examples of such outputs are child care or elder care.

The publication describing the system, *The Statistics Canada Total Work Accounts System* (Catalogue no. 89-549-XPE), is now available. For further information on this release, contact Dr. L.O. Stone at (613) 951-9572; Internet: lstone@freenet.carleton.ca. □

■ **Industry Profiles...a composite picture of key economic sectors**

Industry Profiles, a new series of publications on Canada's key economic sectors, are a useful digest and reference tool based on a wide range of Statistics Canada data. Their user-friendly and concise format features pertinent commentary and easy-to-follow tables and charts. Each profile focuses on a sector's operating characteristics and performance, as reflected in key economic indicators such as output, international trade, labour market information, investment, productivity, research and development and profits. International comparisons are also provided based on data from the OECD's Structural Analysis (STAN) Database. Profiles scheduled for release this autumn were *Canada's Food Processing Industry* (Catalogue no. 15-515-MPE), *Canada's Information Technology Sector* (Catalogue no. 15-516-MPE), and *Canada's Machinery Industry* (Catalogue no. 15-517-MPE).

Industry Profiles are available for \$18 per issue from any Statistics Canada Regional Reference Centre, or from Statistics Canada, Operations and Integration Division, Circulation Management, 120 Parkdale Avenue, Ottawa K1A 0T6; fax (613) 951-1584. Or call toll free 1 800 267-6677. For further information contact Fred Wong, Analysis and Integration, Business and Trade Field at (613) 951-2994; Internet: frewong@statcan.ca. □

■ **Human Resources Development Canada: four views of the labour market**

Earnings Supplements: Are They Effective?

Back to work – fast! That's the goal of earnings supplements provided to recipients of Unemployment Insurance (UI). But is this goal achieved?

The Earnings Supplement Project is a new experiment launched by Human Resources Development Canada's (HRDC) Applied Research Branch. It will test the effectiveness of supplements in hastening the return to work of individuals selected at nine Canada Employment Centres, including UI recipients who have been displaced from stable employment and those who are seasonal, repeat users of UI.

Supplements make up 75% of lost earnings experienced by workers who take a pay cut in order to go back to work. To calculate such losses, pre-UI earnings are capped at the level of maximum UI insurable earnings.

Eligible participants must take full-time jobs. Eligibility also depends on early return to work (within 12 weeks for seasonal workers, 26 for displaced

workers). Workers are eligible for supplements for up to 24 months. Enrolment in the project began in March and continued until mid-1996.

Jobless Recovery: Is it Really Happening?

Based on the weak growth of employment following the 1990-91 recession, several observers have predicted that this economic recovery will be "jobless."

Employment growth was much weaker over the 11 quarters of the 1991-93 recovery than it had been in preceding recoveries. So too was the relationship between employment growth and growth in gross domestic product (GDP). In preceding recoveries a 1% increase in GDP led, on average, to a 0.5% rise in employment. By contrast, during the 1991-93 recovery employment grew, on average, only 0.2% for each percentage-point increase in GDP.

Projecting Labour Market Imbalances: A Contribution from COPS

Predicting the future state of the job market is now a more informative exercise than ever before – courtesy of the Canadian Occupational Projection System (COPS).

This system, used for occupational forecasting, has been overhauled. In 1994, the Applied Research Branch launched a major project, now completed, to update the methodology, models and products used in COPS. One of the project's main goals was to move beyond a simple assessment of employment requirements (the demand side) to a full accounting of both demand and supply sides of the markets. The state of the job market, specifically, future occupational imbalances between supply and demand, can now be projected – providing an essential career planning information tool.

Job Loss and the Older Worker

For some, it's easy; for others, it's a tough time. Older workers who lose their jobs tend to fall into one of two very different adjustment patterns. Some older workers find new jobs with little or no interruption to their work routine. Others languish on the sidelines for prolonged periods – some unable to find new jobs for two years or more and needing significant assistance to obtain that work.

These patterns were among the key findings in a recent study of job loss and adjustment experiences of workers aged 45 and over. The study compared three groups of jobless workers: those who had lost their jobs owing to employer relocation or closure, those who were laid off (seasonally or permanently) and those who had quit. It confirmed that older workers, as a group, are far

less likely to experience job loss than are younger workers. But when they do lose their jobs, they tend to remain unemployed longer.

For further information on these studies, contact HRDC's Publications Co-ordinator at (819) 994-3304; fax (819) 953-8584. □

■ *Studies show effect of UI on workers' behaviour and the economy*

Human Resources Development Canada has released six reports on the effect of the former Unemployment Insurance (UI) system on workers' behaviour and the economy. Part of a series of 30 evaluation studies of the system, four of the reports show that workers have modified their behaviour to take into account UI regulations.

Qualifying for Unemployment Insurance: An Empirical Analysis of Canada examines the effect on regions with high unemployment of a 1990 increase in the UI entrance requirement, from 10 to 14 weeks. Most workers (72%) who had worked 10 weeks in 1989 were able to find the extra work time (10 to 20 weeks) required to receive benefits the next year.

Unemployment Insurance and Employment Durations: Seasonal and Non-Seasonal Jobs estimates that one in 20 seasonal jobs end just as workers qualify for maximum benefits within a 52-week period.

Employment Patterns and Unemployment Insurance shows that employees are 50% to 60% more likely to leave a job once they have worked long enough to qualify for Unemployment Insurance. However, individuals who leave their jobs at this point are more likely to be laid off by their employers than to quit voluntarily.

State Dependence and Unemployment Insurance finds that 7% of UI users account for 22% of all UI claims, and that high frequency use is increasing over time. While low frequency use follows the business cycle, increasing during recessions and decreasing in expansions, high frequency use does not. For frequent users UI resembles a permanent income support that has little to do with labour market risks.

Two other reports conclude that Unemployment Insurance has had a stabilizing effect on the economy, reducing inflationary pressures during the expansionary phase of the business cycle by drawing revenue out of the economy, and bolstering the GDP during recessions by injecting money into the economy. However, when premiums are raised during a recession, the stabilizing effect of UI is considerably reduced.

Canada's Unemployment Insurance Program as an Economic Stabilizer found that during the recent recession the UI program reduced the gap between full and actual employment, preventing the loss of thousands of jobs.

The UI System as an Automatic Stabilizer in Canada estimated that over the past 15 years UI benefits helped the labour force during recessions. In the last two recessions UI injected sufficient replacement income into the economy to avert or to reduce potential loss in real GDP by 10% to 12% and potential loss in jobs by 11% to 14%.

For further information, contact Ging Wong, Evaluation Branch at (819) 954-8940. Electronic copies of the reports are available on the Internet: <http://www.hrdc-drhc.gc.ca>. Printed copies are available from Human Resources Development Canada, Public Enquiries Centre, Ottawa-Hull, K1A 0J9; fax (819) 953-7260. □

■ *School Leavers Follow-up Survey 1995*

Between September and December 1995, Statistics Canada, on behalf of Human Resources Development Canada, conducted the School Leavers Follow-up Survey (SLFS). This survey provides information about the education, training and labour market experiences of young people during the first few years after high school. A comprehensive report will follow in 1997.

For the initial 1991 School Leavers Survey nearly 10,000 people aged 18 to 20 were interviewed. Four years later, the SLFS re-interviewed about two-thirds of the respondents, by then aged 22 to 24, to explore their school-work transitions. The survey was designed to examine transitions not as a one-way movement from school into the world of work, but as a variety of movements that can occur between education, training and the labour market. Initial results indicate that

- in 1991, 63% of youths aged 18 to 20 were high school graduates, 16% were school leavers, and 21% were still in high school. By 1995, these young people were aged 22 to 24: 85% had graduated, 14% were school leavers, and only 1% were still enrolled in high school;
- among women aged 22 to 24, 89% had completed their diploma by 1995, while 10% were still classified as high school leavers. In comparison, 81% of young men had graduated from high school and 18% were school leavers;
- in 1995, 80% of high school graduates had taken further education or formal training. In contrast, just 24% of high school leavers had done so.

For further information on this survey, contact Jeffrey Frank, Education, Culture and Tourism Division at (613) 951-1504; Internet: fran Jef@statcan.ca. □

■ **The Survey of Work Arrangements**

The Survey of Work Arrangements was sponsored by Human Resources Development Canada and carried out by Statistics Canada in November 1995 to capture the rich variety of work arrangements found in the workforce. A similar survey was conducted in 1991.

Issues covered by the survey include shift work, flexitime, home-based work, temporary jobs, paid and unpaid overtime, union membership, firm size, wage and non-wage benefits and moonlighting.

To order the microdata file of survey results (Catalogue no. 71M0013GPE, \$1,500), contact Mike Sivyer, Special Surveys Division at (613) 951-4598; fax (613) 951-0562; Internet: sivy er@statcan.ca.

For further information regarding this survey, contact Ernest B. Akyeampong, Labour and Household Surveys Analysis Division at (613) 951-4624. □

■ **Adult literacy: Canadian results**

Reading the Future: A Portrait of Literacy in Canada (Catalogue no. 89-551-XPE) reports that in 1994 the fundamental story on literacy in Canada remained the same as five years earlier: significant numbers of adults had low-level skills, which constrained their participation in society and in the economy.

At the broadest level, literacy profiles in Canada have demonstrated little change since 1989. This lends little support to earlier predictions of a continuing erosion of literacy skills in Canada. At the same time, given that a new group of students known to have strong literacy skills graduated in the intervening period, some improvement might have been expected.

In fact, this latest group of students was collectively much better educated and more literate than older age groups. However, the International Adult Literacy Survey (IALS) detected no appreciable overall improvement in 1994, suggesting that other factors were altering the literacy skills of working Canadians.

The IALS report drew several main conclusions:

- Literacy is strongly associated with economic opportunities in life. It is related to employment stability, unemployment, and income, among other things.

- Literacy is closely associated with educational attainment. Because the latter differs greatly from region to region in Canada, literacy varies accordingly.
- Education does not "fix" literacy forever. Literacy can be influenced by what people choose to do after leaving school.
- Finally, the number of seniors with weak literacy skills is significant. In 1994, there were more than 1.6 million people aged 65 and over – just under half the total population of seniors – who fell into the lowest performance level. This means a large portion of the population is restricted in its activities and often dependent on others to cope with the literacy activities of daily life.

This new release expands and extends the analysis of the Canadian data presented in *Literacy, Economy and Society: Results of the first International Adult Literacy Survey* (Catalogue no. 89-545-XPE), which was released in December 1995. The latest report includes new data on the distribution of literacy by region and language in Canada, as well as by several specific sub-populations. It also compares the IALS results with Statistics Canada's 1989 Survey of Literacy Skills Used in Daily Activities.

For further information on this release, contact Jean Pignal at (613) 951-3317; Internet: pignjea@statcan.ca, or Special Surveys Division: special@statcan.ca. □

■ **UPCOMING CONFERENCE**

■ ***Intergenerational Equity in Canada*** **February 20-21, 1997. Ottawa.**

What challenges do a shrinking public sector, an increasingly polarized labour market, and changing family structures pose for the social compact between generations? What roles have the state and family played in this compact? In particular, what is the effect of government expenditure and taxation decisions on different generations, and how able are individual households to maintain standards of living in the face of declining government transfers? All these questions relate to issues of "intergenerational equity," and are the subject of a forthcoming conference sponsored jointly by Statistics Canada and Human Resources Development Canada.

Researchers from a range of disciplines – including public sector economists, labour economists, demographers, and sociologists – will present findings covering three related themes: (1) the meaning and measurement of equity in an intergenerational context, and the significance of generational accounting as a tool in conducting fiscal policy; (2) the structure of labour markets and social programs and their implications for household income and intergenerational income mobility; (3) the long-term implications of child poverty, the intergenerational consequences of education, health, and pension programs, and the role of familial support in determining intergenerational equity.

For more information, including a detailed conference program and registration material, consult Statistics Canada's website on the Internet: <http://www.statcan.ca/Documents/English/Conferences/Generations/intro.html>, or contact Miles Corak at coramil@statcan.ca. Or phone (613) 951-6325; fax (613) 951-5403. □

Reader Survey

The content of *Perspectives* is determined by reader interest, so it is important for us to know your needs. Please take a few minutes to answer this questionnaire and return it to us. Thank you.

Is this issue of *Perspectives* ☐ your own ☐ circulating ☐ a library copy ☐ other _____

On a scale of 1 (not useful) to 5 (very useful), please rate the following departments and articles:

Forum	1	2	3	4	5	What's new?	1	2	3	4	5
Highlights	1	2	3	4	5	Key labour and income facts	1	2	3	4	5
Another measure of employment							1	2	3	4	5
RRSP withdrawals revisited							1	2	3	4	5
RRSP rollovers							1	2	3	4	5
The diversity of managers							1	2	3	4	5
Changes in job tenure							1	2	3	4	5
Index 1989-1996							1	2	3	4	5

In general, do you find the topics

Useful? ☐ Always ☐ Usually ☐ Seldom ☐ Never
Timely? ☐ Always ☐ Usually ☐ Seldom ☐ Never
Interesting? ☐ Always ☐ Usually ☐ Seldom ☐ Never

What subjects would you like to see covered in future issues?

How do you feel about the following aspects of *Perspectives*:

Frequency (4 issues per year)	<input type="checkbox"/> About right	<input type="checkbox"/> Too frequent	<input type="checkbox"/> Not frequent enough
Price (\$56 per year)	<input type="checkbox"/> About right	<input type="checkbox"/> Overpriced	<input type="checkbox"/> Underpriced
Writing style	<input type="checkbox"/> About right	<input type="checkbox"/> Difficult to read	<input type="checkbox"/> Over-simplified
Length of articles	<input type="checkbox"/> About right	<input type="checkbox"/> Too long	<input type="checkbox"/> Too short
Number of articles	<input type="checkbox"/> About right	<input type="checkbox"/> Too many	<input type="checkbox"/> Not enough
Level of detail	<input type="checkbox"/> About right	<input type="checkbox"/> Too detailed	<input type="checkbox"/> Not enough detail
Amount learned	<input type="checkbox"/> A lot	<input type="checkbox"/> Some	<input type="checkbox"/> Nothing
Charts	<input type="checkbox"/> About right	<input type="checkbox"/> Difficult to interpret	<input type="checkbox"/> Over-simplified
Tables	<input type="checkbox"/> About right	<input type="checkbox"/> Difficult to interpret	<input type="checkbox"/> Over-simplified

Name	Occupation
Organization	Telephone number
Address	

Please return to: Jeffrey Smith, Managing Editor, *Perspectives on Labour and Income*
 Statistics Canada, 5th floor, Jean Talon Building
 Ottawa, Ontario, K1A 0T6
 Fax: (613) 951-4179

Key labour and income facts

The labour and income indicators are drawn from numerous sources, including published and unpublished annual data. These indicators, covering labour market, earnings, income and other household topics (for Canada, the provinces and territories), are kept in a database that is updated quarterly. For each indicator, a time series of 10 years (or more) is maintained.

The set of indicators can be obtained, on paper or diskette, at a cost of \$50. A document explaining the indicators is also available. Work is in progress to make the indicator data available on the Internet. For further information, contact Joanne Bourdeau at (613) 951-4722; fax (613) 951-4179.

Sources

Currently, the indicators are derived from the following sources:

Labour Force Survey

Frequency: Monthly

Contact: Doug Drew (613) 951-4720

Survey of Consumer Finances

Frequency: Annual

Contact: Réjean Lasnier (613) 951-5266

Absence from Work Survey

Frequency: Annual

Contact: Gabrielle Zboril (613) 951-0477

Help-wanted Index

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Unemployment Insurance Statistics Program

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Survey of Employment, Payrolls and Hours

Frequency: Monthly

Contact: Sylvie Picard (613) 951-4090

Major wage settlements, Bureau of Labour Information (Human Resources Development Canada)

Frequency: Quarterly

Information: (819) 997-3117

Labour income

Frequency: Quarterly

Contact: Ed Bunko (613) 951-4048

Household Facilities and Equipment Survey

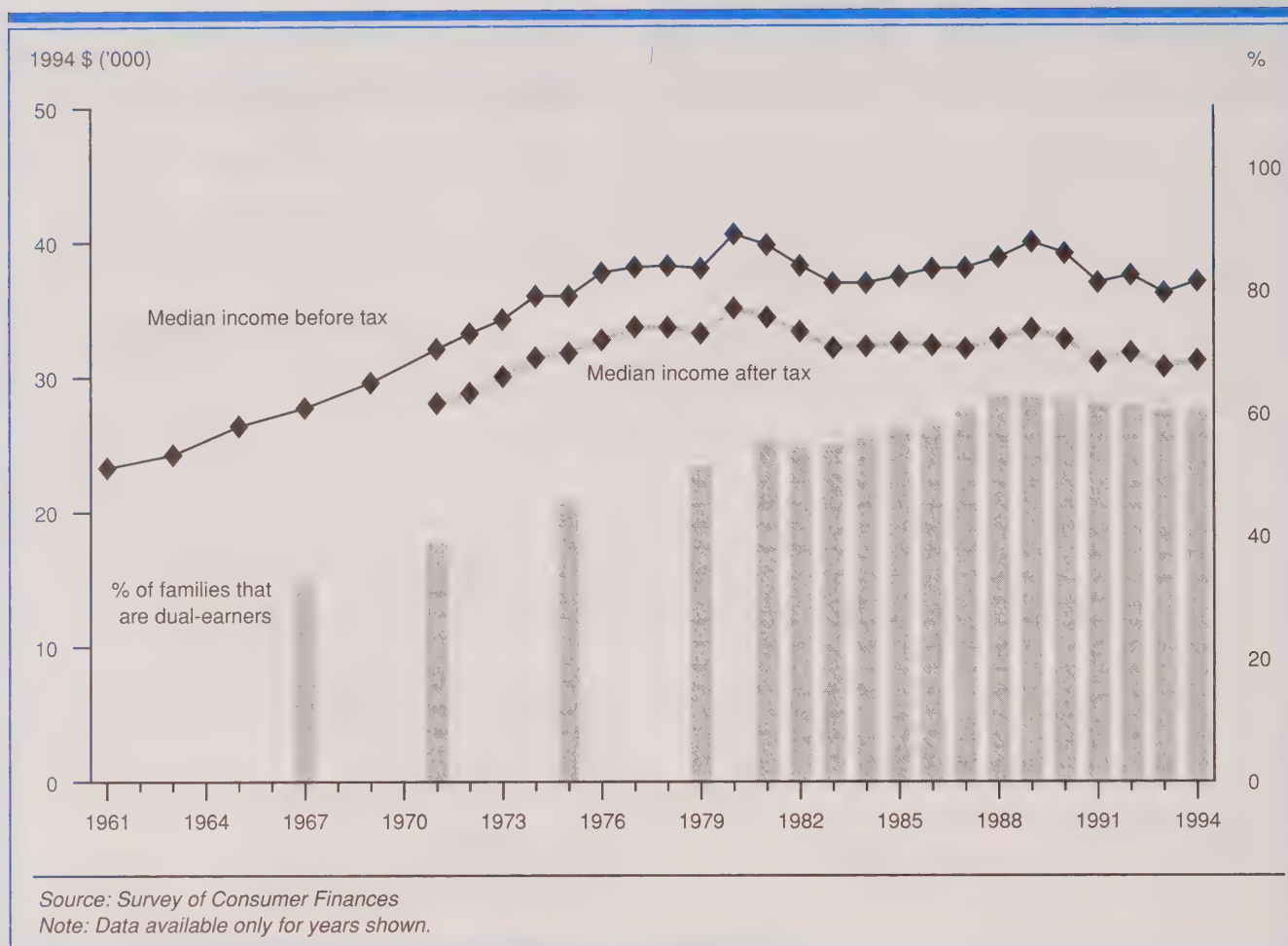
Frequency: Annual

Contact: Réjean Lasnier (613) 951-5266

Small area and administrative data

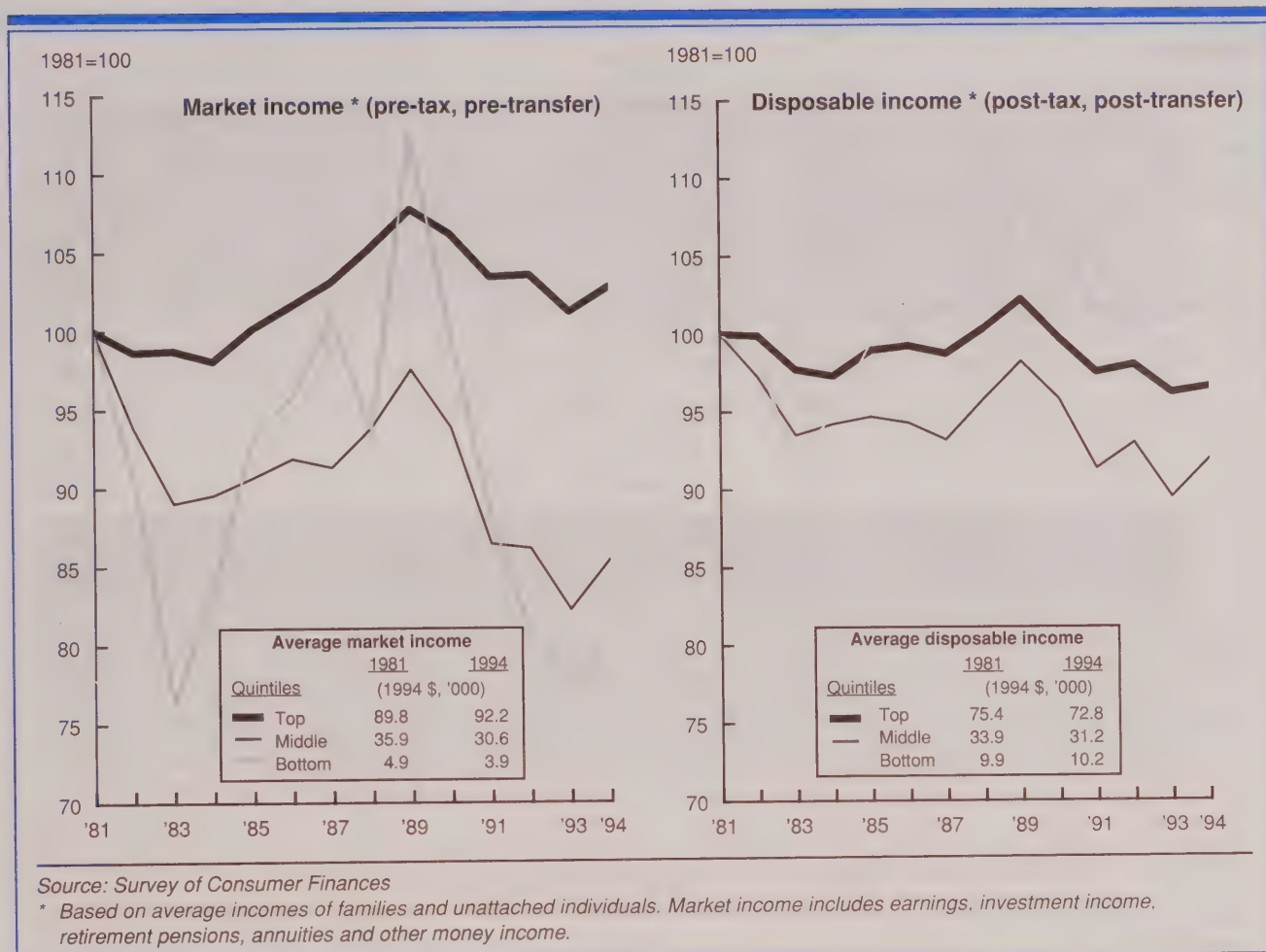
Frequency: Annual

Customer Services: (613) 951-9720



Incomes of families and unattached individuals have been stagnant since 1980

- After rapid growth in the 1960s and 1970s median incomes of families and unattached individuals peaked in 1980. Since then, they have fluctuated with the business cycle, with no overall growth.
- Family incomes have stagnated since the early 1980s in spite of the greater percentage of two-earner families.
- Before- and after-tax median incomes have grown further apart. Personal income taxes as a percentage of total family average income rose from 16% in 1984 to 20% in 1994 (data not charted). Expressed differently, the average family tax bill increased from just over \$8,000 to nearly \$11,000 (in 1994 dollars).

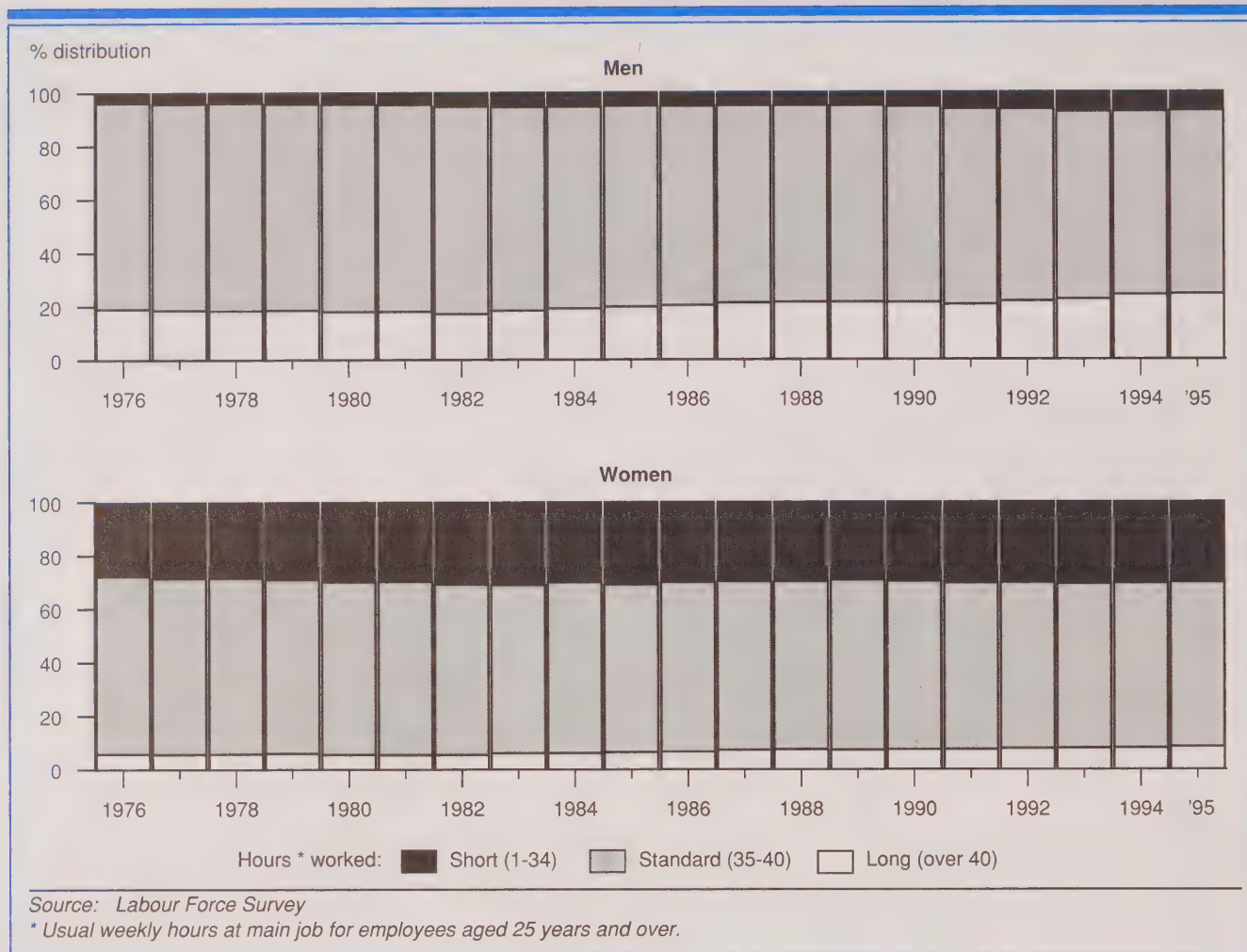


Disposable incomes have remained fairly stable in spite of growing inequality in market income

- If taxes and transfer payments are excluded from family and unattached individual incomes, and market income alone is considered, income inequality grew from 1981 to 1994. Market incomes of families and unattached individuals fell in the bottom and middle quintiles, but rose slightly among top income earners.
- The transfer and, to a lesser extent, the tax system offset the rising inequality in market incomes, resulting in a drop in disposable income for those in the middle and top quintiles and a rise for those in the bottom quintile. In contrast, income disparity in the United States has increased significantly since the late 1970s.
- Poorer families and unattached individuals depend to a considerable extent on transfers. This is

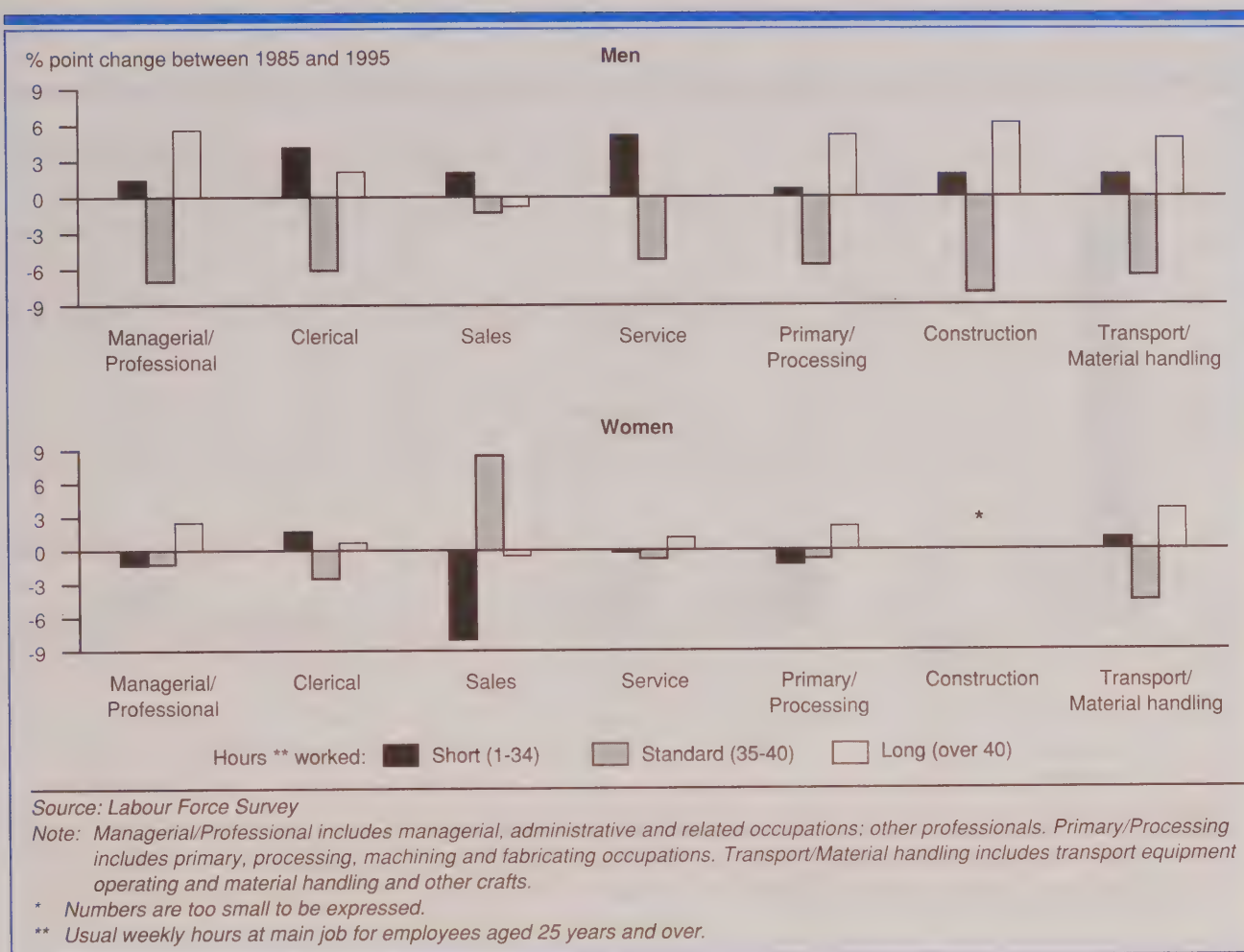
increasing as market income declines. Government transfers accounted for 67% of the income of the poorest one-fifth of families and unattached individuals in 1994, up from around 58% in the early 1980s.

- The increase in market income disparity can be attributed largely to the growing inequality of individual earnings, particularly among men. This is due in large measure to the polarization of usual hours of work. That is, fewer Canadians are working a standard 35-to-40 hour week, and more are working either shorter or longer hours. Differences in wage rates have also contributed to increases in earnings inequality: those who work long hours tend to have high wage rates while those who work short hours have lower rates.



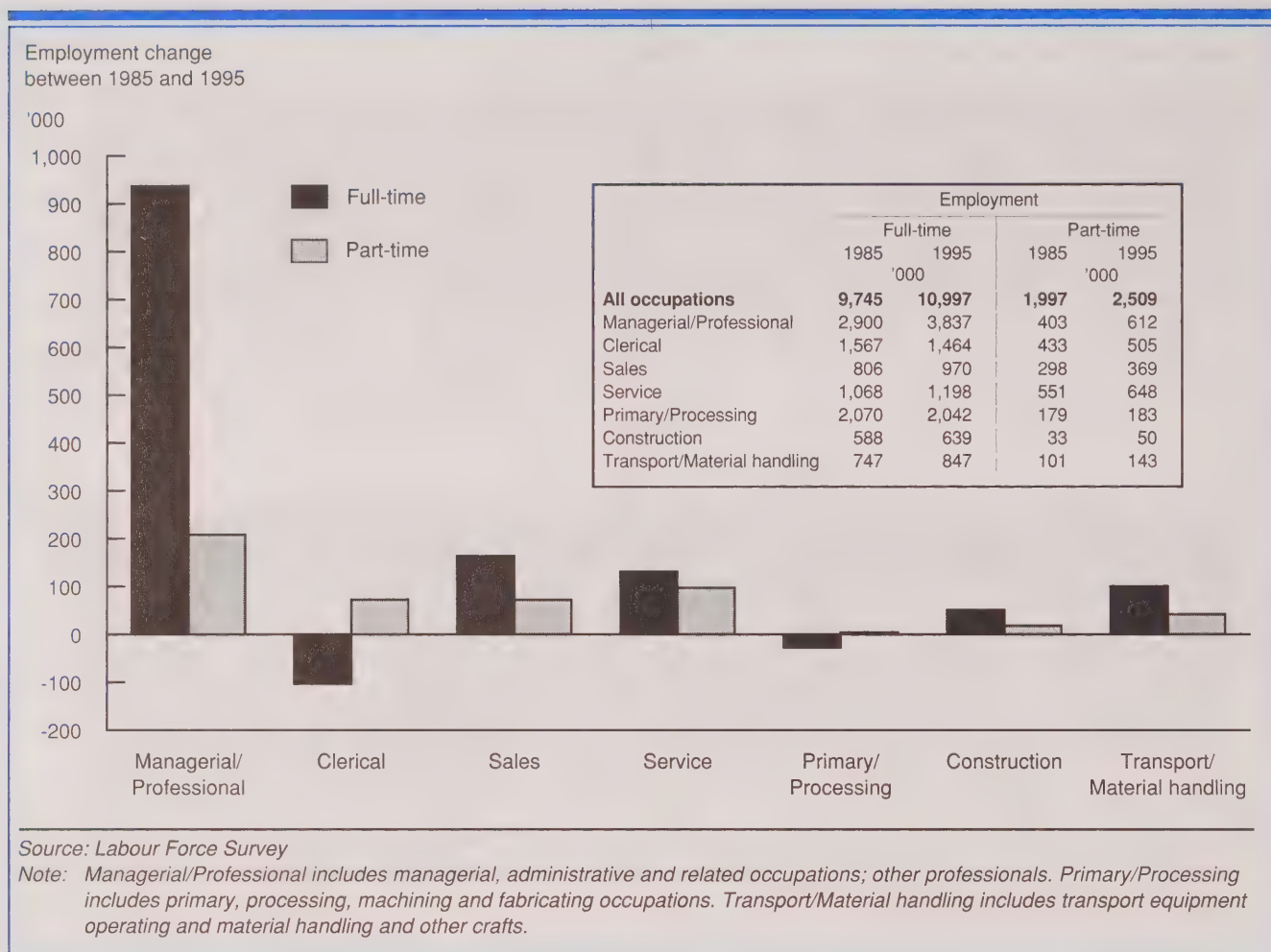
Standard hours have decreased for both men and women

- Men and women tend to have very different work schedules and distributions of weekly hours. While a roughly similar proportion of adult male and female employees worked standard hours in 1995 (68.6% and 61.3%, respectively), women were four times more likely than men to work short hours (30.1% versus 7.1%), and men were three times more likely than women to work long hours (24.3% versus 8.6%). Despite differences in the overall distribution of hours, both sexes are experiencing a shrinking of standard hours, with increases in short and long hours.
- It appears that polarization of hours has been somewhat greater for adult men. The share of standard hours dropped 8.5 percentage points (compared with 5.1 points for women) between 1976 and 1995, with long hours increasing by 5.3 points and short hours growing by 3.2 points. The greatest shift for men has occurred since 1989.
- Long and short hours increased in similar proportions for women (up 2.7 and 2.4 points, respectively). This shift has been gradual and steady since the early 1980s.



Standard hours have increased only for women in sales

- The proportion of adult male employees working standard hours is shrinking in all seven occupational groups shown. Instead of widespread polarization, however, there appears to be hours inequality, as standard hours have shifted in favour of short or long hours. White-collar (managerial/professional) and blue-collar occupations (primary/processing, construction and transport/material handling) are experiencing growth mainly in the proportion of long hours worked. Clerical, sales, and service jobs, on the other hand, are showing increases in the proportion of short hours worked.
- Occupations requiring long hours by men either demand a high level of responsibility (white-collar jobs), or offer regular opportunities to work paid overtime (blue-collar). In the case of blue-collar occupations, it is probably more cost efficient for employers to pay overtime wages than to hire and train new employees. White-collar workers, especially managers, may be working longer hours as a result of corporate downsizing or as a means of keeping their jobs in a competitive employment market. Occupations in which short hours are becoming more common (clerical, sales and service) are often those with lower paying and/or part-time jobs.
- For women in five out of six occupational groups, standard hours are also shrinking and shifting in one direction. These shifts are generally not as strong as those for men. As with men, there is growth mainly in long hours for both white- and blue-collar workers, and in short hours for clerical. Women in sales occupations, however, are the one group whose standard hours have increased while short hours have decreased.



Change in full- and part-time employment, by occupation, 1985-1995

- Between 1985 and 1995, full-time employment in the managerial/professional occupations has increased significantly (over 930,000), while declining in clerical and primary/processing occupations. For part-time employment, increases have been mostly in managerial/professional (210,000) and service (almost 100,000) jobs.
- Technological change has likely brought about fewer clerical and manufacturing-related jobs. The latter were severely hit during the recession and have not fully recovered. Generally, jobs requiring higher levels of education are increasing.

In the works

Here are some of the topics to be featured in upcoming issues

■ The labour market: Year-end review

Review and analysis of important changes and trends in the labour market in 1996.

■ Labour market and industrial development in the Yukon and Northwest Territories

This article examines recent economic and labour market developments in Canada's North. In addition, trends in employment growth are compared with those in the rest of Canada. The distribution of employment according to selected population characteristics (age, sex, Aboriginal origin, migrant status) is also studied.

■ Earnings and income trends in the Yukon and Northwest Territories

An analysis of trends in earnings in the Yukon and Northwest Territories. Differences in earnings between the North and the rest of Canada are examined by occupation, age and sex. The distribution of earnings by Aboriginal origin and length of residency is also studied. The article includes some information on income by source.

■ RRSP contributions by young workers

This paper analyzes the contribution behaviour of young Canadian workers from 1983 to 1992. Two cohorts of young taxfilers were studied: persons aged 25 to 29 in 1983 and those aged 25 to 29 in 1988. Each group was followed for five years to determine the frequency of RRSP participation and any trends in the numbers of contributors, by income and sex. Amounts of contribution and withdrawal are analyzed and characteristics that would increase the likelihood of contribution are identified.

■ Low income RRSP contributors

This article looks at the growth in the percentage of taxfilers with low incomes who contribute to RRSPs and suggests reasons for this increase. Rates of participation are examined by sex, according to individual as well as family income.

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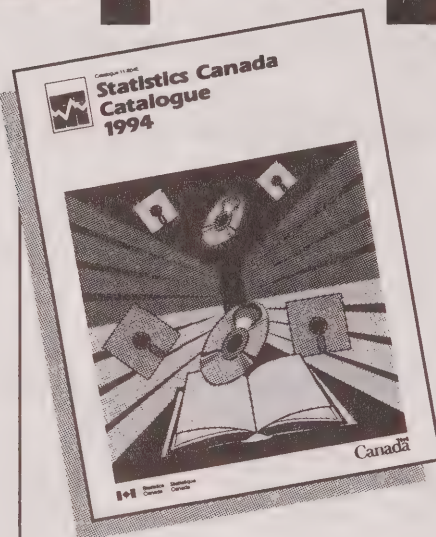
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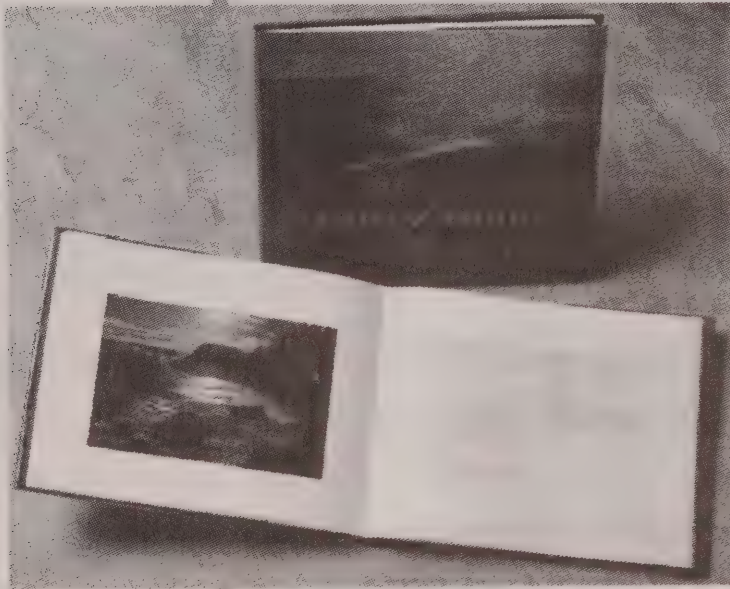
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